PART C ASSESSMENT OF HERITAGE SIGNIFICANCE

This part assesses values identified for the place against heritage significance criteria from the Heritage Act and sets out a succinct statement of significance.
It also notes existing listings.

HERITAGE SIGNIFICANCE CRITERIA – BLUNDELLS FLAT

Under s.10 of the *Heritage Act 2005* a place or object has heritage significance if it satisfies one or more of the heritage significance criteria. The values and relative significance of the place are discussed below for each criterion.

(a) it demonstrates a high degree of technical or creative achievement (or both), by showing qualities of innovation, discovery, invention or an exceptionally fine level of application of existing techniques or approaches;

Not considered relevant to this place

(b) it exhibits outstanding design or aesthetic qualities valued by the community or a cultural group;

The place has high aesthetic value derived from its landform diversity, setting enclosed by hills, reliable water in a complex stream, and proximity to valleys, cliffs and waterfalls, which have been used for nature-based recreation from Canberra over many decades.

This value will increase over time as vegetation regenerates further and post-fire debris becomes less evident.

(c) it is important as evidence of a distinctive way of life, taste, tradition, religion, land use, custom, process, design or function that is no longer practised, is in danger of being lost or is of exceptional interest;

The place contains numerous Aboriginal artefact scatters which demonstrate occupation and use of land by Aboriginal people in the past. As the product of past Aboriginal land use they demonstrate various aspects of a traditional way of life no longer practised in the ACT.

(d) it is highly valued by the community or a cultural group for reasons of strong or special religious, spiritual, cultural, educational or social associations;

The place is of significance to the Aboriginal community due to its association with traditional Aboriginal culture and its ability to demonstrate the comprehensive occupation of the ACT by their ancestors.

The place is highly valued by some groups in the Canberra community as a longstanding meeting place and starting point for nature-based recreation and organized events (including competitive events), with a pattern of regular use spanning many decades.
This has been less evident while the place has been recovering from fire damage.

(e) it is significant to the ACT because of its importance as part of local Aboriginal tradition;

The place contains a significant spread of Aboriginal sites that may assist our understanding of past use of the landscape, particularly use of montane areas and links between the Canberra plains and upland areas, including (but not confined to) association with Bogong moth exploitation on the Brindabella Range and moth consumption at Uriarra. The proximity, spatial relationships and routes between these sites remain evident.

There are few places in the ACT where this can be as readily interpreted.
This complements a number of other existing heritage listings (see below).

(f) it is a rare or unique example of its kind, or is rare or unique in its comparative intactness;

The place is unusual and arguably rare in terms of its landscape context and its hydrological and ecological features. Many of these features are relatively intact when compared with other places affected by the 2003 wildfires, although intensive management of some threats will be required for a time.

(g) it is a notable example of a kind of place or object and demonstrates the main characteristics of that kind;

The place includes a notable example of a valley floor wetland complex in a montane setting, with a mix of upland and lowland characteristics. It demonstrates characteristics of several types of wetlands (peatland, soaks, meadows, ponds), riparian forest on alluvial flats dominated by *Eucalyptus viminalis* and cold air drainage vegetation, as well as functional ecotones between these communities which have implications for dual habitat species.

There are few easily accessible places in the ACT where these kinds of environments can be as readily demonstrated and interpreted without potential adverse impact on other resources or values.

Condor Creek is a notable example of an upland stream with a form modified by a granite substrate. It demonstrates variation in stream form with confined channel upstream of the wetland, braided and cryptic form within the wetland (on granites), and tightly sinuous form between flats downstream from the wetland before re-entering a confined channel and taking a significant change in direction at the end of the granite substrate.
There is no other known place in the ACT where this can be as readily demonstrated and interpreted.

(h) it has strong or special associations with a person, group, event, development or cultural phase in local or national history;

The place has associations with numerous historic themes and is of significant value for presentation and interpretation of stories about phases in the history and development of Canberra and the ACT, and about persons notable in local and regional history and the history of national professional bodies or institutions also associated with the Federal Capital functions of Canberra.

This value is enhanced by its proximity to Canberra and relative ease of access.

In particular:

- It has strong association with Aboriginal people travelling through and using natural resources in the landscape of the region, with substantial physical evidence.
  The place remains evocative of a sheltering environment with abundant resources.
- It has association with Aboriginal people interacting positively with settlers and guiding settlers to resources and routes across the region. This extends to subsequent layers and phases of historic use of these routes, particularly from Uriarra and Yarralumla to Brindabella and Coolamine, and particularly from the 1830's to 1890's.
  This association is evident in documents, maps and photographs, and substantial parts of historic routes remain for interpretation.
- It has strong and direct association with early settler/selector families of the region (Blundell; McKenzie; Shumack; McDonald), including 'smaller' settlers. Some of these in turn have association with significant pioneer landholders (Campbell at Duntroon; Davis & Wright at Lanyon; Murray at Yarralumla). This association is evident in documents.
- It has strong association with 19th century accounts of travel in the mountains west of Canberra (Murray; Mowle; P G Smith; Gale) and these offer insights into the pre-Federation phase, including the remoteness of small settlers (Blundell).
  Murray and Mowle were associated with development of a pattern of transhumance across the region, involving mountain pastures and outstations, linking the Canberra plain with Brindabella and Coolamine.
  Other associations include passage by goldseekers to Kiandra and Brindabella, and by base metal miners at Mount Blundell.
  These associations are evident in documents, particularly from 1830's to 1910, and substantial parts of historic routes remain for interpretation.
  The place remains evocative of the sense of remoteness commented on by travellers.

- It has association in the period from 1910 to 1926 with aspects of establishment of the Federal Capital Territory relating to protection of Canberra water supply, associated resumption of pastoral land, depopulation of the catchment, border survey for the Territory (Sheaffe), including re-survey of the Cotter catchment within NSW (Pulver), and visits by notable scientists (Cambage).
  This association is evident in documents, maps and photographs.
  In existing heritage listings, it complements the border survey markers which remain.

- It has strong association with the significant debate in scientific and government circles regarding the impact of forestry activity on catchment values. It was this place that most aroused concern about clearing of wet native forest types for plantations, and soil conservation measures undertaken here in the 1960's were among the first of their kind in the Territory. Plans for clearing and plantation development here aroused public outcry and media attention. As a result, clearing of native forests for plantation here and in the Cotter catchment generally was discontinued.
  The place symbolises the turning point in this debate, which mirrors the controversy over proposed re-establishment of pines in the water supply catchment following the 2003 wildfires.
  This association is evident in documents, maps and photographs, and some physical evidence.
  This is the most suitable place for interpreting this theme.

- It has strong association with the Australian Forestry School following its move to Canberra in 1927, being the site for field based activities of the School (forestry camps), and is strongly associated with the emergence of the profession of forestry in Australia. This is evident in documents, and particularly in photographs.
  Sites visible in contemporary photographs are identifiable today, allowing interpretation of the field orientation of the School to complement the built elements of the Forestry School and Westridge House in Yarralumla.

- It has strong association with other aspects of forestry heritage, particularly Federal planting trials of softwood species (conifers and poplars) as a fundamental part of development of an Australian and local softwood industry. These in turn are associated with notable foresters (e.g. Lane Poole; Pryor) and noted international plant breeders and geneticists. This extends to association with Imperial Forestry connections in sources of provenance. This association is evident in documents.
  Additionally, it contains remains of the largest and most diverse arboretum established by the Commonwealth Forestry Bureau (also the first to be established at an upland elevation) and remains of an arboretum for poplar clone trials, these relating to the period from 1920's to 1960's.
  This is the most suitable place in the ACT for interpreting this theme, in which it complements Bendora Arboretum, Blue Range Hut and Pryors Hut.

- It contains a seed orchard planted by Canberra-based CSIRO researchers to support conservation of an endangered eucalypt species *Eucalyptus parvifolia* (now *E.parvula*), extending the place's association with forestry heritage to the 1990's, marking an era in which emphasis altered significantly to native species.
  There is no other known site in the ACT where this dimension of the theme can be as readily related to, and contrasted with, earlier phases of scientific enquiry.

- It has association with other scientific enquiry from Canberra-based CSIRO (and other) researchers, including collection and description of crustaceans (e.g. type locality for *Engaeus* variety) and insects (e.g. *Keyacris*; Australian National Insect Collection; association with notable entomologists in the 1930's and 1940's).
  This association is evident in documents and is specific to this place.

- It has association with the development of nature-based recreation and tourism. This both pre-dates, and is associated with, the establishment and growth of the national capital. This in turn has diverse associations, ranging from local bushman and guide John Blundell to enthusiastic recreational skiers such as the scientist Lane Poole.
  This association is allied with emergence of advocacy for conservation management in the area, such as public outcry over clearing of native forests for pine plantations, and associated contamination of catchments (in which debate Lane Poole was 'on the other side').
  The place demonstrates continuity of outdoor recreation activity over a century.
  This is a highly suitable place for interpreting this theme, in which it complements other places such as the Cotter Recreation Reserve and Mount Franklin Chalet site.

(i) it is significant for understanding the evolution of natural landscapes, including significant geological features, landforms, biota or natural processes;

The place offers significant opportunities for understanding evolution of natural landscapes, including its utility to illustrate:

- the effect of geological substrate on landform, hydrology and vegetation
- the effect of edaphic factors (e.g. cold air drainage, soil, aspect) on vegetation form
- the ecological functioning of wetland types (including ecosystem/water quality services) and ecotones (including dual habitat species)
- peatland formation and environmental history

A number of these are the subject of active survey and enquiry.

This value is enhanced by proximity to Canberra and relative ease of access. There are few easily accessible places in the ACT where these kinds of environments can be as readily demonstrated and interpreted without potential adverse impact on other resources.

(j) it has provided, or is likely to provide, information that will contribute significantly to a wider understanding of the natural or cultural history of the ACT because of its use or potential use as a research site or object, teaching site or object, type locality or benchmark site;

The place offers significant opportunities for use as a teaching site for both natural and cultural history of the ACT, including its utility to illustrate:

- the place of landform in determining both access/transport and use/settlement patterns from Aboriginal use to the 20th century
- the effect of geological substrate on landform, hydrology and vegetation
- the effect of edaphic factors (e.g. cold air drainage, soil, aspect) on vegetation form
- the ecological functioning of wetland types (including ecosystem/water quality services) and ecotones (including dual habitat species)
- peatland formation and environmental history
- phases in establishment of the Federal Capital Territory and Canberra, including the emergence of national scientific and research institutions and organizations
- several phases of forestry science and forest management over eight decades (softwood trials, hardwood harvesting, softwood plantation, endangered eucalypt conservation, community engagement, catchment protection)
- functional linkages in the landscape (e.g. with Coree, Uriarra/Canberra Plain), transhumance patterns and Travelling Stock Reserves

This value is enhanced by proximity to Canberra and relative ease of access. There are few easily accessible places in the ACT where these environmental factors can be as readily demonstrated and interpreted without potential adverse impact on other resources or values.

It offers significant opportunities for use as a research site, including:

- a range of artefact scatters which may provide information about past Aboriginal occupation of the locality and region
- a lower elevation wetland site with potential for manipulation of pond types as part of recovery actions for the threatened Northern Corroboree Frog
- investigation of a population of the unusual burrowing land crayfish *Engaeus cymus* which is uncommon in the ACT and potentially threatened
- potential of the peatland to yield information about environmental history
- potential of the sediments in Condor Creek riparian zone and flats to yield information about environmental history
- continued enquiry into poplar clones and potential value
- continued enquiry and use of seed stock for *Eucalyptus parvifolia* (now *E.parvula*) variants.

This value is enhanced by proximity to Canberra and relative ease of access. These values are specific to this place.

(k) it exhibits unusual richness, diversity or significant transitions of flora, fauna or natural landscapes and their elements;

The place exhibits an unusual richness, diversity and significant transitions of flora, fauna and natural landscape and their elements. Of particular value are:

- uncommon landform demonstrating geological transitions
- high degree of structural and floristic diversity of vegetation in a small area (forests, wetlands, sedgelands, grasslands, herbfields, heaths, wet gullies) demonstrating transition from upland to lowland types
- a complex of wetland types including a peatland
- extensive ecotone transitions with implications for dual habitat fauna species (some uncommon to endangered)

There are few easily accessible places in the ACT with all of these elements available for demonstration and interpretation, without potential for adverse impact on other resources or values.

(l) it is a significant ecological community, habitat or locality for any of the following:
(i) the life cycle of native species;
(ii) rare, threatened or uncommon species;
(iii) species at the limits of their natural range;
(iv) distinct occurrences of species.

The place is significant habitat for the life cycle of native species, this value being enhanced by the unusual landscape context of the place and its transitional forms from upland to lowland types and marked ecotones for dual habitat species.

The place is habitat for several rare, threatened or uncommon species including:

- the threatened *Pseudophryne pengilleyi* Northern Corroboree Frog (recent past record; now offering potential habitat as part of recovery actions)
- a population of the unusual burrowing land crayfish *Engaeus cymus* which is uncommon in the ACT and potentially threatened (recent past record; research needed to verify extent of survival post-fire)
- the locally rare *Eucalyptus camphora* Mountain Swamp Gum (past record; offering potential habitat)
- the uncommon morabine grasshopper *Keyacris scurra* (past record; potential habitat requiring further assessment)

The place includes a distinct occurrence of *Eucalyptus viminalis* forest in the riparian zone and on alluvial flats, in a form uncommon in the ACT.

The place appears to include temperate grassland types which are threatened or uncommon ecological communities (requiring further assessment).

There are few easily accessible places in the ACT with such a suite of species relevant for interpretation of threatening processes.

RELATIVE SIGNIFICANCE – BLUNDELLS FLAT

The significance of Blundells Flat is considered to be:

Exceptional for:		None
High for:	*(g)*	*it is a notable example of a kind of place or object and demonstrates the main characteristics of that kind;*
	(h)	*it has strong or special associations with a person, group, event, development or cultural phase in local or national history;*
	(i)	*it is significant for understanding the evolution of natural landscapes, including significant geological features, landforms, biota or natural processes;*
	(j)	*it has provided, or is likely to provide, information that will contribute significantly to a wider understanding of the natural or cultural history of the ACT because of its use or potential use as a research site or object, teaching site or object, type locality or benchmark site;*
	(k)	*it exhibits unusual richness, diversity or significant transitions of flora, fauna or natural landscapes and their elements;*
	(l)	*it is a significant ecological community, habitat or locality for any of the following:* *(i) the life cycle of native species;* *(ii) rare, threatened or uncommon species;* *(iii) species at the limits of their natural range;* *(iv) distinct occurrences of species.*
Moderate for:	*(c)*	*it is important as evidence of a distinctive way of life, taste, tradition, religion, land use, custom, process, design or function that is no longer practised, is in danger of being lost or is of exceptional interest;*
	(d)	*it is highly valued by the community or a cultural group for reasons of strong or special religious, spiritual, cultural, educational or social associations;*
	(e)	*it is significant to the ACT because of its importance as part of local Aboriginal tradition;*
	(f)	*it is a rare or unique example of its kind, or is rare or unique in its comparative intactness;*
Little for:	None	
None for:	*(a)*	*it demonstrates a high degree of technical or creative achievement (or both), by showing qualities of innovation, discovery, invention or an exceptionally fine level of application of existing techniques or approaches;*
	(b)	*it exhibits outstanding design or aesthetic qualities valued by the community or a cultural group;*

SUMMARY OF HERITAGE SIGNIFICANCE – BLUNDELLS FLAT

Blundells Flat is distinctive for the number and strength of themes represented there.
This value is enhanced by functional linkages in the landscape.
Together these enable ready demonstration of both continuity and change.

The value of the place for interpretation and education is enhanced by its proximity to Canberra and relative ease of access.

The place has strong associations with numerous historic themes and is of value for presentation and interpretation of its many layers of stories about:

- phases in the history and development of Canberra and the ACT
- persons notable in local and regional history, including 'smaller' settlers; and
- persons notable in the history of professional bodies or institutions associated with the Federal Capital functions of Canberra.

In this regard it is significant at local, regional and national levels.

The place contains a spread of Aboriginal sites that may assist our understanding of past use of the landscape, particularly use of montane areas and links between the Canberra plains and upland areas. In this regard it is significant at local and regional levels.

The place has an unusual landscape context, includes notable examples of peatland, wetland and riparian communities, and exhibits transitional forms from upland to lowland types and marked ecotones for dual habitat species. In this regard it is significant at local and regional levels.

It is significant habitat for the life cycle of a number of uncommon native species and offers potential habitat for recovery of some threatened species, including *Pseudophryne pengilleyi* the endangered Northern Corroboree Frog. In this regard it is significant at local and regional levels, and could become significant at national level.

The place offers many opportunities for understanding evolution of natural landscapes, for teaching about the interaction between natural and cultural history of the ACT, and for use as a research site related primarily to prehistory, environmental history and threatened species. In this regard it is significant at local and regional levels.

Blundells Flat is an area offering a broad range of evidence relating to the prehistoric, colonial and modern periods in the ACT. Its natural beauty alone offers solace to town-weary visitors, but the stories of those who lived there, and those who left their marks upon the landscape, enrich our knowledge and enjoyment of our heritage. It is a site worth keeping and caring for.

Canberra Archaeological Society Newsletter May 1989

HERITAGE SIGNIFICANCE CRITERIA – SHANNONS FLAT

Under s.10 of the *Heritage Act 2005* a place or object has heritage significance if it satisfies one or more of the heritage significance criteria. The values and relative significance of the place are discussed below for each relevant criterion.

(h) it has strong or special associations with a person, group, event, development or cultural phase in local or national history;

The place has associations with some historic themes and may be of value for presentation and interpretation of stories about phases in local and regional history and the history and development of Canberra and the ACT.

This value is enhanced by its proximity to Canberra, proximity to Blundells Flat, and relative ease of access.

In particular:

- It has association with a turn-of-the-century 'small' selector family (Shannon) with roots in Monaro pioneers.
- It has association in the period from 1910 to 1926 with aspects of establishment of the Federal Capital Territory relating to resumption of pastoral land for water catchment (to protect Cotter Dam). Although Shannon occupied the block for not much more than a decade, contemporary documents indicate a significant effort expended to develop the block in that time.

(i) it is significant for understanding the evolution of natural landscapes, including significant geological features, landforms, biota or natural processes;

The place offers significant opportunities for understanding evolution of natural landscapes, including its utility to illustrate the effect of edaphic factors (e.g. cold air drainage, soil, aspect) on vegetation form, in particular *Eucalyptus camphora*.

This value is enhanced by proximity to Canberra, proximity to Blundells Flat, and relative ease of access.

(j) it has provided, or is likely to provide, information that will contribute significantly to a wider understanding of the natural or cultural history of the ACT because of its use or potential use as a research site or object, teaching site or object, type locality or benchmark site;

The Wombat Creek corridor through Shannons Flat is part of an extensive riparian buffer zone research project in the lower Cotter catchment. This may be coupled with monitoring of the recovery of *Eucalyptus camphora* and/or research of its habitat requirements to expand knowledge of this locally rare species.

As the only locality in the ACT for *E. camphora* it is very important as a source of local provenance seed and for teaching.

(l) it is a significant ecological community, habitat or locality for any of the following:

(i) the life cycle of native species;

(ii) rare, threatened or uncommon species;

(iii) species at the limits of their natural range;

(iv) distinct occurrences of species.

The place is the only verified location in the ACT for *Eucalyptus camphora* subsp.*humeana* (Mountain Swamp Gum), which is close to the northern limit of its range.

It is a significant habitat for this species, which grows here in association with a riparian and wetland complex. It has potential to develop here into a near-monospecific structure, which is now rarely found in this region.

RELATIVE SIGNIFICANCE – SHANNONS FLAT

The significance of Shannons Flat is considered to be

Exceptional for:	None
High for:	*(l) it is a significant ecological community, habitat or locality for any of the following:* *(i) the life cycle of native species;* *(ii) rare, threatened or uncommon species;* *(iii) species at the limits of their natural range;* *(iv) distinct occurrences of species.* *(j) it has provided, or is likely to provide, information that will contribute significantly to a wider understanding of the natural or cultural history of the ACT because of its use or potential use as a research site or object, teaching site or object, type locality or benchmark site;*
Moderate for:	*(h) it has strong or special associations with a person, group, event, development or cultural phase in local or national history;*
Little for:	None
None for:	*(a) it demonstrates a high degree of technical or creative achievement (or both), by showing qualities of innovation, discovery, invention or an exceptionally fine level of application of existing techniques or approaches;* *(b) it exhibits outstanding design or aesthetic qualities valued by the community or a cultural group;* *(c) it is important as evidence of a distinctive way of life, taste, tradition, religion, land use, custom, process, design or function that is no longer practised, is in danger of being lost or is of exceptional interest;* *(d) it is highly valued by the community or a cultural group for reasons of strong or special religious, spiritual, cultural, educational or social associations;* *(e) it is significant to the ACT because of its importance as part of local Aboriginal tradition;* *(f) it is a rare or unique example of its kind, or is rare or unique in its comparative intactness;* *(g) it is a notable example of a kind of place or object and demonstrates the main characteristics of that kind;* *(h) it has strong or special associations with a person, group, event, development or cultural phase in local or national history;* *(i) it is significant for understanding the evolution of natural landscapes, including significant geological features, landforms, biota or natural processes;* *(k) it exhibits unusual richness, diversity or significant transitions of flora, fauna or natural landscapes and their elements;*

SUMMARY OF HERITAGE SIGNIFICANCE – SHANNONS FLAT

Shannons Flat is the only verified location in the ACT for the locally rare *Eucalyptus camphora* subsp.*humeana* (Mountain Swamp Gum), which is close to the northern limit of its range.

The place is a significant habitat for this subspecies, which grows here in association with a riparian and wetland complex. It has the potential to develop in a near-monospecific structure, which is rare in this region.

The Wombat Creek corridor through Shannons Flat, together with associated wetland areas, is of value for ecological research, including habitat requirements of *Eucalyptus camphora*.

As the only locality in the ACT for *E. camphora* it is very important as a source of local provenance seed and for teaching.

In conjunction with Blundells Flat, the place also has value for presentation and interpretation of stories about phases in local and regional history and the history and development of Canberra and the ACT.

In all these regards it is significant at local and regional levels.

The value of the place for research, interpretation and education is enhanced by its proximity to Canberra and ease of access.

EXISTING HERITAGE LISTINGS

Existing listings which relate geographically to Blundells Flat and Shannons Flat include:

- several groups of recorded Aboriginal places at Blundells Flat and elsewhere in the Coree and Cotter River Districts entered in the ACT Heritage Register (see below)
- nomination of the Blundells Arboretum (pt Block 18 Cotter River) to the ACT Heritage Register
- nomination to, or registration in, the ACT Heritage Register of a number of related cultural heritage places (see below)
- listing of Blundells Flat by the National Trust of Australia (ACT) as an Aboriginal site; and
- entry of the Northern Brindabellas area on the Register of the National Estate (Place ID 13400; Registered 1984). This encompasses an area of about 2,500 ha within the ACT, north of Bulls Head. Blundells Flat is excluded from this listing which shares a boundary with Namadgi National Park.

A number of heritage places which are outside the Blundells Flat and Shannons Flat area, but which are geographically or thematically linked to it, have been nominated to, or registered in, the ACT Heritage Register. These include:

- Aboriginal Places in Belconnen, Coree, Cotter River, Gungahlin, Paddys River & Stromlo (registered – inc. pt Block 11 Cotter River; pts Blocks 35 and 40 Coree; pt Block 10 Paddys River; pt Blocks 38 and 452 Stromlo)
- Aboriginal places in Belconnen, Coree, Paddys River & Tuggeranong (listed – inc Blocks 5 and 82 Coree pt; Block 323 Paddys River)
- Aboriginal Places in Coree & Cotter River (Brindabella Transmission Line easement)
- Aboriginal Places in ACT Forests (listed - pt Block 12 Cotter River; pt Blocks 219, 331 Paddys River)
- Aboriginal Places in Uriarra Forest (listed – pt Block 11 Cotter River; pt Blocks 35, 66, 67 Coree)
- Aboriginal Places in Pierces Creek Forest (listed – pt Block 12 Cotter River; pt Block 491 Stromlo; pt Blocks 47, 143, 219, 320, 322, 323, 324 Paddys River)
- Blue Range Hut and environs (nominated - pt Block 35 Coree)
- Blue Range Arboretum No.8 and pt No.9 (nominated – pt Block 11 Cotter River)
- Piccadilly Circus Arboretum (nominated – pt Block 18 Cotter River)
- Bendora Hut (listed – Block 18 Cotter River)
- Bendora Arboretum (listed – pt Block 17 Cotter River)
- Mt Franklin Chalet (listed – Blocks 2 and 4 pt Cotter River)
- Brumby yards (listed – pt Blocks 6 and 18 Cotter River)
- Pryors Hut (listed – pt Block 18 Cotter River)
- Lees Creek sawmill ruin (listed - pt Block 18 Cotter River)
- ACT-NSW Border markers (listed – pt Blocks 2,6,7,18 Cotter River)
- Sherwood near Uriarra (nominated - Block 23 Coree)
- Woodstock near Uriarra (nominated - Block 63 Coree)
- Cotter dam, parts of reserve and suspension bridge (nominated - blocks 29, 30, 34, 38, 39 Coree)
- Cotter Pumping Station and associated housing (listed Coree; Blocks 470,471,390 Stromlo; plus Cotter Bridge and Road Reserve)
- Namadgi National Park (nominated)
- Tidbinbilla Nature Reserve (nominated)
- Murrumbidgee River Corridor (nominated)

PART D ISSUES, OPPORTUNITIES AND CONSTRAINTS

This Part identifies management issues, opportunities and constraints for each landscape unit by relating elements of significance to threats and current condition.

It also identifies initial protective measures to respond to threats and current condition, to be developed further in **Part E Conservation Policy & Works**.

References relevant to threats and protective measures include:

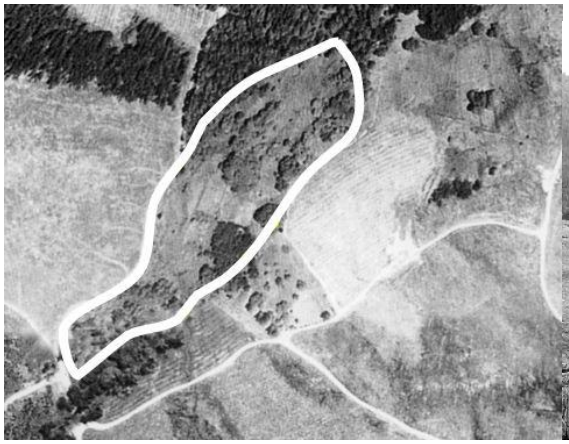
- ACT Government 1997a (Corroboree frog)
- ACT Government 2003d (catchment)
- ACT Government 2005a (grasslands)
- ACT Government 2006a (aquatic systems and riparian zone)
- ACT Government 2006b (wetlands)
- Carey et al 2003 (plants and animals)
- Cottingham et al 2003 (wood in streams)
- England et al 2004 (effects of burning)
- FACTA [Friends of ACT Arboreta] 2003 (weeds and native regeneration)
- Fearnside & Wells 2003 (arboreta)
- Gill et al 2004 (fire and high country)
- Higgins 2003 (cultural heritage)
- Hope et al 2005 (mires in high country)
- Horwitz 1990a; 1995; Horwitz & Adams 2000 (burrowing crayfish)
- Legoe 1981 (peatlands)
- Lindenmayer 2006 (debris removal, biodiversity and catchments)
- Lintermans & Osborne 2002 (freshwater animals)
- Ludwig et al 1997 (ecological function)
- Merrick 1995 (burrowing crayfish)
- NCPA [National Capital Planning Authority] 1989 (natural and cultural heritage)
- Osborne 1990 (Corroboree frog)
- Peat & Norris 2005
- Pope et al 2006 (willows)
- PWS [Parks and Wildlife Service, Tasmania] n.d. (burrowing crayfish)
- Rowell & Crawford 1995 (*Keyacris scurra*)
- Rustomji & Hairsine 2005 (catchments)
- Starr et al n.d. (erosion; streams)
- Taylor 1992 (cultural heritage in natural settings)
- Walker & Salt 2006 (ecosystem resilience)
- Wallis, Argue & Pearson 2003 (cultural heritage)
- Yen & Butcher 1997 (invertebrates)

Protective measures also take into account:

- Australia ICOMOS 1999 (Burra Charter)
- AHC 2002 (Australian Natural Heritage Charter).

BLUNDELLS FLAT

WP Wetland soak / Peatland



Area:	c.8ha
Description:	Developed on Condor Creek, low relief 740-750m Cryptic drainage in parts, several channels, entrenched in places; flow reduction; Fen and swamp vegetation; peat present; Large exotics planted, many fire-killed
Compartments:	n/a
Landscape function:	Valley floor receiving system; reducing and filtering water flow
Elements of significance	Wetland complex (habitat and ecosystem services); readily accessible for education Peatland (environmental history record) Ecotones for dual habitat species Habitat or potential habitat for threatened Northern Corroboree Frog *Pseudophryne pengilleyi* Habitat or potential habitat for burrowing land crayfish *Engaeus cymus* uncommon and potentially threatened Likely focus for Aboriginal use of area Focus for selection and settlement – McDonald and Blundell Site of 'swimming pool' for Australian Forestry School camp 1927

WP	***Wetland complex /Peatland***	
Threats:	**Current condition:**	**Protective measures:**
Fire reduces vegetation cover for a time, may expose or remove peat; removes cover for biota (may expand potential habitat in shallow pools for a time)	Strong native regeneration post-fire with good cover Woody mass of fire-killed willows, poplars and other exotic trees now felled into Wetland soak across line of flow	No deliberate application of fire
Incision of streams and human derived drainage lowers water table in wetland areas, favouring terrestrial weeds and increasing flux of water and sediment; may inhibit peat formation and retention	Wetland soak incised at downstream end (3 points) Condor Creek likely to be incised and lowering water table In-stream habitat includes significant woody debris, slowing flow and encouraging pooling	Hand fell standing dead willows and other exotics across direction of flow and leave timber on site [largely achieved at April 2008] (Following above) Address incision with 'soft' engineering; adaptive management in response to water behaviour
Weeds compete with native plant species; may alter drainage; inhibit access; (but may provide protective cover for dual habitat species)	Weed growth in parts in and around Wetland soak	Control woody weeds (with some latitude around site of Blundell farmhouse); hand remove pine wildings before maturity [partly achieved at April 2008]
Sediment input may smother vegetation, accelerate incision of streams, lower wetland water tables and impair water retention capacity, increasing water flux	Significant sediment entering Wetland soak from past uncontrolled access in picnic area [largely controlled as at April 2008] Significant sediment entering Wetland soak from forest roads [largely controlled as at April 2008]	Provide sediment control structures on forest roads [largely achieved at April 2008] Address sediment movement within wetland with 'soft' engineering only
Feral animal activity (e.g. pigs, horses) may damage wetland, increasing sediment flux and spreading weeds	No feral animal activity evident	Monitor feral animal activity; address promptly if detected
Access by heavy machinery or uncontrolled use by recreational vehicles may damage wetland and meadows, increasing sediment flux and spreading weeds	Limited incursions by trail bikes at edge of Wetland soak	Control use by recreational vehicles [largely achieved at April 2008] Policy of no machinery access
Raw human waste may wash to wetland and affect nutrient balances	Human waste and associated material evident at picnic area on Eastern Terrace	Relocate picnic area away from wetland and streams; install closed system toilets
Lack of acceptance and/or understanding of wetland/peatland values may lead to destructive or negligent behaviours	Previous interpretive infrastructure destroyed by fire (did not interpret wetland/peatland values)	Develop interpretive tracks to edges and viewpoints; consider boardwalk for loop access' consider new crossing at downstream end (no vehicle access) Community engagement in wetland repair

WP	***Ecotones for dual habitat species***	
Threats:	**Current condition:**	**Protective measures:**
Physical removal of forest structures adjacent to wetland	Eucalypt areas regenerated strongly Adjacent fire-killed pines removed; reasonable ground cover retained Adjacent fire-killed willows, poplars and other exotic trees felled into Wetland across line of flow	Retain selected standing dead exotic timber until recovery of native forest [largely achieved at April 2008]

WP	***Habitat or potential habitat for threatened Northern Corroboree Frog***	
Threats:	**Current condition:**	**Protective measures:**
Poor understanding of population distribution and life histories	Presence not confirmed No systematic survey or study undertaken in this area to assess status	Monitor for presence in potential habitat Monitor any populations Research life histories and impacts of climate change/UV-B radiation Consider research to manipulate pools and reintroduce from captive populations
Vulnerable to fire: - likely high direct mortality - during breeding season reduces recruitment - reduces ground cover shelter (logs, leaf litter) - reduces over-winter survival (reduced shelter, increased predation) - reduces food (small invertebrates) in short term	Strong native regeneration post-fire with good ground cover Significant mass of felled fire-killed willows, poplars and other exotic trees provide cover Habitat includes significant woody debris, which slows flow and encourages pooling Expansion of shallow pool habitat in places	No deliberate burning within 500m of potential breeding sites
Vulnerable to pesticides & herbicides in catchment	No chemical weed control undertaken nearby since fires	
Vulnerable to infilling of shallow areas (potential habitat) due to sediment flux	Significant sediment input from past uncontrolled access in picnic area and from forest roads [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement within wetland with 'soft' engineering only
Vulnerable to heavy machinery	No machinery activity evident near potential breeding sites	No use of heavy machinery within 500m of breeding sites
Vulnerable to predation by feral animals	No activity evident	Monitor; control feral animals in breeding areas
Vulnerable to impacts from management and visitor activities	No impacts evident near potential breeding sites	Monitor; minimise impact of management and visitor activities

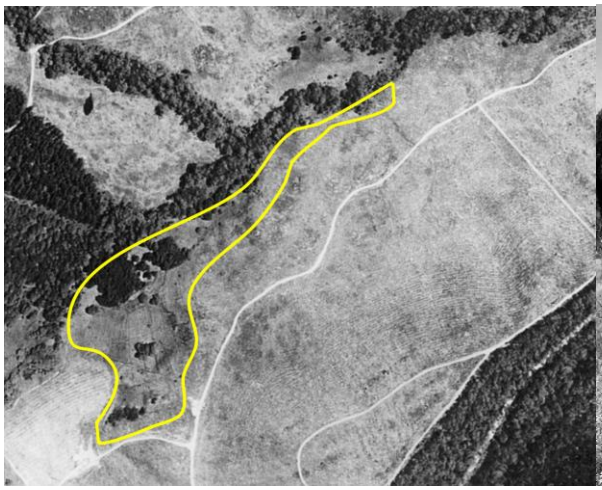
WP	***Habitat or potential habitat for burrowing land crayfish*** **Engaeus cymus**	
Threats:	**Current condition:**	**Protective measures:**
Lack of knowledge on all aspects of life cycle, habitat preferences and impact of introduced salmonid fish	Presence not confirmed here No survey or study undertaken in this area to assess status	Undertake research on *Engaeus* population
Fire reduces vegetation cover for a time (food and shelter)	Strong native regeneration post-fire with good ground cover	Manage fire intensity around wetland areas Exclude fire from wetland areas and 100m buffer where debris and cover is encouraged
Very susceptible to alteration of environment during mating, moulting, nurturing young and at times when on the surface	Strong recovery of dense forest structure in riparian areas	Ensure riparian strips of natural vegetation at least 100m wide, to include banks and flood plains
Susceptible to changes in water quality and quantity	Significant sediment input from past uncontrolled access in picnic area and from forest roads [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement within wetland ('soft' engineering)
Susceptible to degraded bank integrity; increased sediment may fill spaces between rocks and pebbles, removing shelter and refuges	Banks undercut and meander necks breached post-fire, increased sediment flux (now stabilised) Woody debris slowing flow, encouraging pooling, providing shelter	Ensure riparian strips of natural vegetation at least 100m wide, to include stream/gully banks and flood plains Intervene with 'soft' engineering if undercutting/breaching continues
Vulnerable to heavy machinery, particularly when water tables are high	No machinery activity evident near potential habitat	No use of heavy machinery within 100m buffer

WP	***Likely focus for Aboriginal use of area***	
Threats:	**Current condition:**	**Protective measures:**
Alteration of wetland character (availability of resources as attractor for human use)	Strong native regeneration post-fire with good ground cover Incision at downstream end	See *Wetland complex / Peatland* above

WP	***Focus for selection and settlement – McDonald and Blundell***	
Threats:	**Current condition:**	**Protective measures:**
Alteration of wetland character (availability of resources as attractor for settlement)	Strong native regeneration post-fire with good ground cover Incision at downstream end	See *Wetland complex / Peatland* above

WP	***Site of 'swimming pool' for Australian Forestry School camp***	
Threats:	**Current condition:**	**Protective measures:**
Alteration of wetland character (availability of water in channel)	Incision may have reduced pooling at this site Extensive fire-killed exotic timber felled in channel	See *Wetland complex / Peatland* above

EM Eastern Meadow



Area:	c.10ha
Description:	Impeded drainage area; low-relief 750-760m; sloping gently to west towards Condor Creek where drier areas intersperse with soaks and pools Mostly grassland, herbfield, heath, some tall native trees, scattered fire-killed exotic trees, fire-killed poplar arboretum (suckering); and grassland areas
Compartments:	Part 415D (pine 1956, 1994), 415B (poplar arboretum 1959-)
Landscape function:	Depositional structure receiving and filtering runoff from Eastern Slopes and foothills Retains and spreads water at base of slope with indirect connection to valley floor creek
Elements of significance:	Meadow area (grassland, herbfield, heath, grassland, some forest) Off-creek wetland with soaks and pools, some with hummock forming mosses (and possibly *Sphagnum*) Ecotones for dual habitat species Remains of excavated drains Poplar arboretum remains (boundary fence, standing dead trees, regeneration) Habitat or potential habitat for Northern Corroboree Frog *Pseudophryne pengilleyi* Habitat or potential habitat for Burrowing land crayfish *Engaeus cymus* Habitat or potential habitat for Key's matchstick grasshopper *Keyacris scurra*

EM	***Meadow area (grassland, herbfield, heath, grassland, some forest)***	
Threats:	**Current condition:**	**Protective measures:**
Fire reduces vegetation cover for a time, removes cover for biota (may expand potential habitat in shallow pools for a time)	Strong native regeneration post-fire with ground cover	No deliberate application of fire, unless required for ecological regeneration of threatened communities
Incision of streams and human derived drainage lowers water table in meadow areas, favouring terrestrial weeds and increasing flux of water and sediment	Downslope drains in Eastern meadow lowering water table; mostly vegetated, some scouring Condor Creek likely to be incised and lowering water table	Address sediment movement within meadow with 'soft' engineering only
Weeds compete with native plant species; may alter drainage; inhibit access; (may provide cover)	Weed growth in parts Poplar suckers compromising hummock forming mosses in pools	Control woody weeds; hand remove pine wildings before maturity
Sediment input may smother vegetation, accelerate incision of streams or drains, lower water tables and impair water retention capacity, increasing water flux	Significant sediment input from forest roads (including mud wallows) [largely controlled as at April 2008]	Provide sediment control structures on forest roads [largely achieved as at April 2008] Physically remove link between Curries Road and Five Fords Road [achieved as at April 2008] Close Five Fords Road to traffic [partly achieved as at April 2008] Address sediment movement within meadow with 'soft' engineering only
Feral animal activity (e.g. pigs, horses) may damage meadow, increasing sediment flux and spreading weeds	Very limited pig activity in past; some currently evident	Monitor feral animal activity; address promptly if detected
Access by heavy machinery or uncontrolled use by recreational vehicles may damage meadows, increasing sediment flux and spreading weeds	Limited incursions by trail bikes [largely controlled as at April 2008] No incursions by heavy machinery evident	Control use by recreational vehicles [largely achieved as at April 2008] Policy of no machinery access

EM	***Remains of excavated drains***	
Threats:	**Current condition:**	**Protective measures:**
Changes to physical form	Largely vegetated; some light scouring Lowering water table	No physical modification Reduce through flow by straw bale dams [some installed 2006/7; require renewal as at April 2008]

EM	***Remains of poplar arboretum***	
Threats:	**Current condition:**	**Protective measures:**
Physical removal	Trees killed; sucker regeneration Parts of old fence remain	Remove dead timber; retain suckers inside fence line (control outside fenceline) [partly achieved as at April 2008] Provide signage for information and education

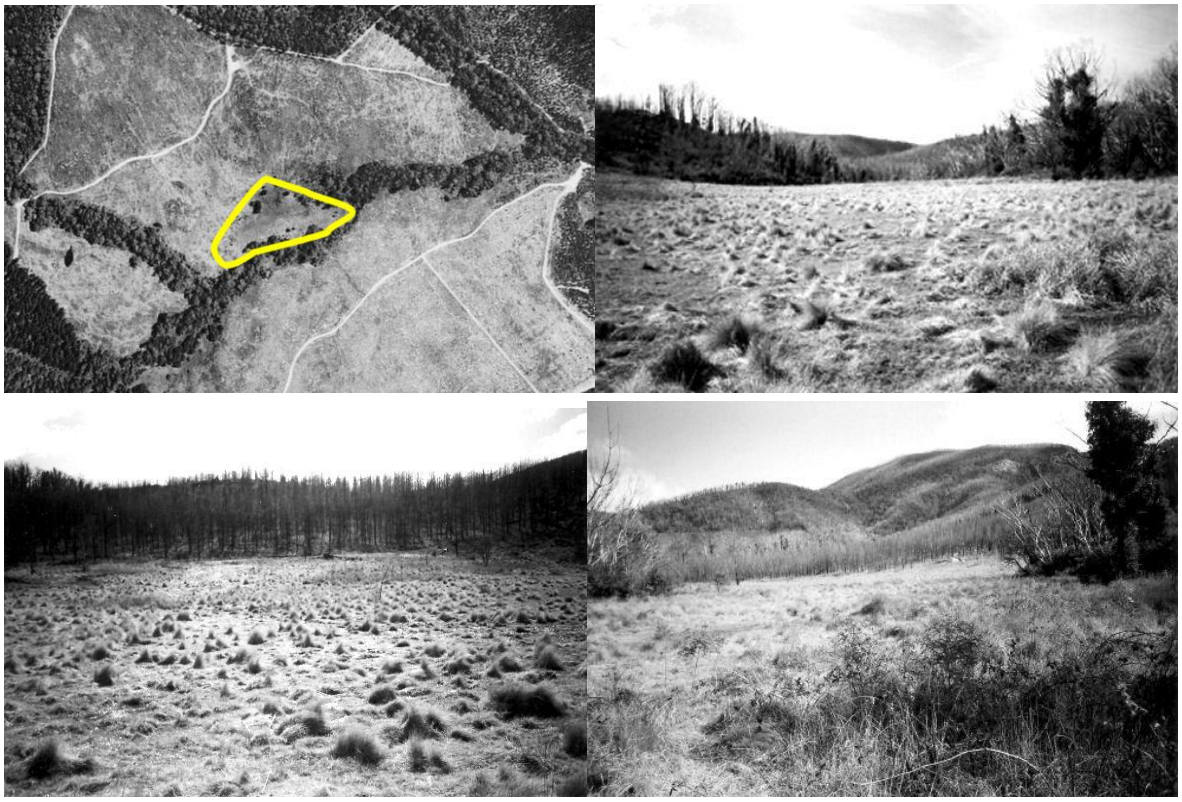
EM	***Ecotones for dual habitat species***	
Threats:	**Current condition:**	**Protective measures:**
Physical removal of forest structures adjacent to wetland	Eucalypt areas regenerating strongly and expanded in area Adjacent fire-killed pines removed; some stands of pines and poplars retained; reasonable ground cover in most areas	Retain selected standing dead exotic timber until recovery of native forest [largely achieved as at April 2008] May need to consider selective removal of regenerating eucalypts if ecotones are greatly diminished

EM	***Habitat or potential habitat for threatened Northern Corroboree Frog***	
Threats:	**Current condition:**	**Protective measures:**
Poor understanding of population distribution and life histories	Presence not confirmed No systematic survey or study undertaken in this area to assess status	Monitor for presence of Corroboree Frog in potential habitat Monitor any populations Research life histories and impacts of climate change and UV-B radiation Consider research involving manipulation of pools and reintroduction from captive populations
Vulnerable to fire: - likely high direct mortality - during breeding season reduces recruitment - reduces ground cover shelter (logs, leaf litter) - reduces over-winter survival (reduced shelter, increased predation) - reduces food (small invertebrates) in short term	Strong native regeneration post-fire with good ground cover Fire-killed willows, poplars and other exotic trees provide cover Potential habitat in soaks and pools at lower end of meadow with hummock forming mosses (and possibly *Sphagnum*)	No deliberate burning within 500m of potential breeding sites
Vulnerable to pesticides & herbicides in catchment	Some chemical weed control undertaken nearby since fires	
Vulnerable to infilling of shallow areas (potential habitat) due to sediment flux	Limited sediment input evident from drains, forest roads and debris removal upslope [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement within meadow with 'soft' engineering only
Vulnerable to heavy machinery	No machinery activity evident near potential breeding sites	No use of heavy machinery within 500m of breeding sites
Vulnerable to predation by feral animals	Limited feral pig activity evident	Monitor; control feral animals in breeding areas
Vulnerable to impacts from management and visitor activities	No impacts evident near potential breeding sites	Monitor; minimise impact of management and visitor activities

EM	***Habitat or potential habitat for Burrowing land crayfish*** **Engaeus cymus**	
Threats:	**Current condition:**	**Protective measures:**
Poor understanding of all aspects of life cycle, habitat preferences and the impact of introduced salmonid fish	Presence not confirmed No survey or study undertaken in this area to assess status	Undertake research on *Engaeus* population
Fire reduces vegetation cover for a time (food and shelter)	Strong native regeneration post-fire with good ground cover	Manage fire intensity around wetland areas Exclude fire from wetland areas and 100m buffer where debris and cover is encouraged
Very susceptible to alteration of environment during mating, moulting, nurturing young and at times when on the surface	Strong recovery of dense forest structure in riparian areas	Ensure riparian strips of natural vegetation at least 100m wide, which include banks and flood plains
Susceptible to changes in water quality and quantity	Limited sediment input evident from drains, forest roads and debris removal upslope [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement near wetlands ('soft' engineering)
Vulnerable to heavy machinery, particularly when water table is high	Adjacent standing dead pines trackrolled only No other machinery activity evident near potential habitat	No use of heavy machinery within 100m buffer

EM ***Habitat or potential habitat for Key's Matchstick grasshopper*** **Keyacris scurra**		
Threats:	**Current condition:**	**Protective measures:**
Fire (including control burning) may remove habitat; species is vulnerable to fire at most times of year; very sensitive to changes in native vegetation structure; limited ability to recolonise due to limited mobility and fragmentation	Native grassland areas regenerating strongly	No deliberate application of fire, unless required for ecological regeneration of threatened communities
Weeds may dominate habitat or may inhibit regeneration; weed control may affect native grasses	Native grasses regenerating strongly Blackberries and other weeds regenerating	Control woody weeds; hand remove pine wildings before maturity [partly achieved as at April 2008] May need to consider selective removal of regenerating eucalypts if grassland area is greatly diminished
Feral animals e.g. pigs or horse may disturb habitat; species very sensitive to changes in native vegetation structure from physical damage	Limited feral pig activity evident	Monitor feral animal activity; address promptly if detected

WM Western Meadow



Area:	c.1.5 ha
Description:	Low-lying area of impeded drainage below northern slopes and adjoining Riparian Zone on Condor Creek and Musk Creek Few woody plants, some regenerating eucalypts Confined by granite outcrops with native timber, and fire-killed pine above
Compartments:	n/a (below 418)
Landscape function:	Depositional structure receiving and filtering runoff from Western Slopes and water from midslope springs Retains and spreads water at base of slope before connection to valley floor creek May have been larger in the past, with form altered by settlers and subsequent plantation development
Elements of significance:	Off-creek wetland, soak, meadow (grassland, moss areas, herbfield) fed by active springs in granite outcrop above Ecotones for dual habitat species Habitat or potential habitat for Northern Corroboree Frog *Pseudophryne pengilleyi* (remoteness favours research) Habitat or potential habitat for Burrowing land crayfish *Engaeus cymus* on margins

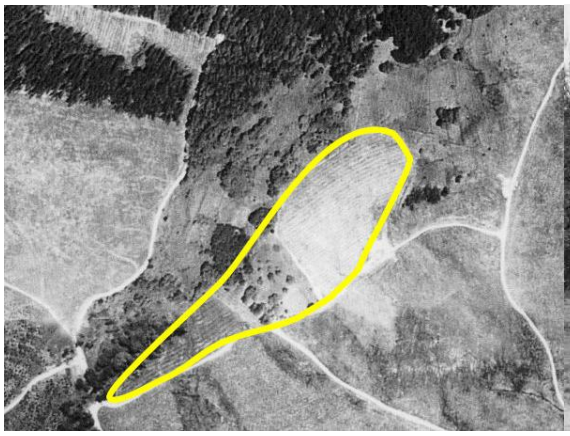
WM	***Wetland, meadow***	
Threats:	**Current condition:**	**Protective measures:**
Fire reduces vegetation cover for a time; removes cover for biota (may expand potential habitat in shallow pools for a time)	Strong native regeneration post-fire with good ground cover	No deliberate application of fire
Weeds compete with native plant species; may alter drainage; inhibit access; (but may provide protective cover for dual habitat species)	Weed growth in parts in and around Western Meadow	Control woody weeds; hand remove any pine wildings before maturity [partly achieved as at April 2008]
Sediment input may smother vegetation, lower wetland water tables and impair water retention capacity, increasing water flux	Some sediment entering wetland from forest roads and debris removal on slopes above [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement and slow water flux ('soft' engineering)
Feral animal activity (e.g. pigs, horses) may damage wetland, increasing sediment flux and spreading weeds	No feral animal activity evident	Monitor feral animal activity; address promptly if detected
Access by heavy machinery or uncontrolled use by recreational vehicles may damage wetland, springs or granite outcrops, increasing sediment flux and spreading weeds	No incursions by heavy machinery or trail bikes evident	Control use by recreational vehicles; no machinery access

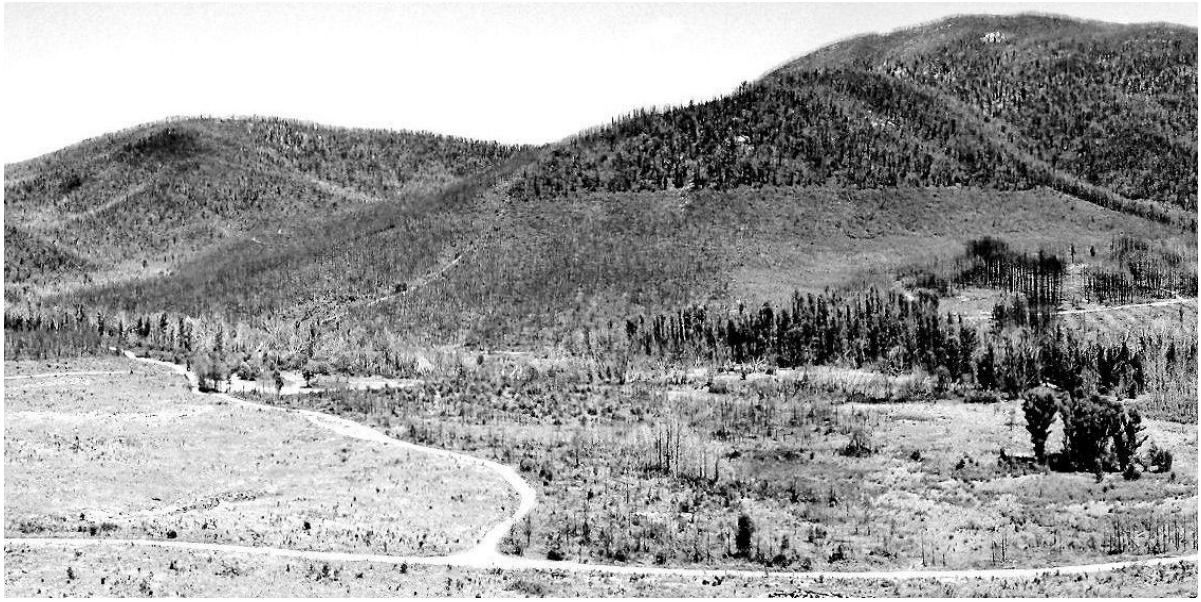
WM	***Ecotones for dual habitat species***	
Threats:	**Current condition:**	**Protective measures:**
Physical removal of forest structures adjacent to wetland	Eucalypt areas regenerated strongly Adjacent fire-killed pines removed; good ground cover	Protect remaining native timber

WM	***Habitat or potential habitat for Burrowing land crayfish* Engaeus cymus**	
Threats:	**Current condition:**	**Protective measures:**
Lack of knowledge on all aspects of life cycle, habitat preferences and impact of introduced salmonid fish	Presence confirmed from burrows No survey or study undertaken in this area to assess status	Undertake research on *Engaeus* population
Fire reduces vegetation cover for a time (food and shelter)	Strong native regeneration post-fire with good ground cover	Manage fire intensity around wetland areas Exclude fire from wetland areas and 100m buffer where debris and regeneration for cover is encouraged
Very susceptible to alteration of environment during mating, moulting, nurturing young and at times when on the surface		Ensure riparian strips of native vegetation at least 100m wide
Susceptible to changes in water quality and quantity	Previously significant sediment input from forest roads [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement near wetlands ('soft' engineering)
Susceptible to degraded bank integrity; increased sediment may fill spaces between rocks and pebbles, removing shelter and refuges	Banks undercut and meander necks breached post-fire with increased sediment flux (since stabilised) Significant woody debris slowing flow and encouraging pooling, providing shelter	Ensure riparian strips of native vegetation at least 100m wide, which include banks and flood plains Address sediment movement with 'soft' engineering only
Vulnerable to heavy machinery, particularly when water table is high	Adjacent standing dead pines removed by machinery	No use of heavy machinery within 100m buffer

WM	***Habitat or potential habitat for threatened Northern Corroboree Frog***	
Threats:	**Current condition:**	**Protective measures:**
Poor understanding of population distribution and life histories	Presence not confirmed No systematic survey or study undertaken in this area to assess status	Monitor for presence in potential habitat Monitor any populations Research life histories and impacts of climate change and UV-B radiation Consider research involving manipulation of pools and reintroduction from captive populations
Vulnerable to fire: - likely high direct mortality - during breeding season reduces recruitment - reduces ground cover shelter (logs, leaf litter) - reduces over-winter survival (reduced shelter, increased predation) - reduces food (small invertebrates) in short term	Strong native regeneration post-fire with good ground cover Felled fire-killed willows, poplars and other exotic trees provide cover Potential habitat in soaks and pools at lower end of meadow with hummock forming mosses (and possibly *Sphagnum*)	No deliberate burning within 500m of potential breeding sites
Vulnerable to pesticides & herbicides in catchment	No chemical weed control undertaken nearby since fires	
Vulnerable to infilling of shallow areas (potential habitat) due to sediment flux	Limited sediment input evident from drains, forest roads and debris removal upslope [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement within meadow ('soft' engineering)
Vulnerable to heavy machinery	No machinery activity evident near potential breeding sites	No use of heavy machinery within 500m of breeding sites
Vulnerable to predation by feral animals	No activity evident	Monitor; control feral animals in breeding areas
Vulnerable to impacts from management and visitor activities	No impacts evident near potential breeding sites	Do not promote access Monitor; minimise impact of management and visitor activities

ET Eastern Terrace





Area:	c.6ha
Description:	Footslope area elevated above Wetland and Eastern Meadow, generally low relief 770m Mostly native timbered, with exotics (including fruit trees) near old farmhouse site; remains of fire-killed pine Contains picnic area
Compartments:	Parts 415C (pine 1956, eucalypt 1992), 415D (pine 1956, 1994)
Landscape function:	Depositional structure below Eastern Slopes Confines eastern lateral spread of Wetland
Elements of significance:	Aboriginal places recorded Site of Blundells farmhouse; remains of Blundell orchard Site of Australian Forestry School camp and forestry camp CSIRO endangered eucalypt seed production area Uriarra school eucalypt planting Elevated area affords views over Flat to mountains (particularly Mt Blundell) and into wetland and meadow areas

ET *Aboriginal places*		
Threats:	**Current condition:**	**Protective measures:**
Poor understanding of patterns of Aboriginal use	Numerous traces recorded	Ensure prompt recording of new traces
Erosion increases exposure or may bury traces	Removal of surface layers post-fire evident from soil pedestals under stones Some traces previously recorded now buried; new traces now exposed	Exclude heavy machinery and control vehicle access Close and rehabilitate picnic area [largely achieved as at April 2008]; establish new picnic area to east Include Aboriginal use in interpretation but do not draw attention to specific sites
Feral animals may disturb traces	No impacts evident	Monitor feral animal activity; address promptly if detected

ET *Site of Blundells farmhouse and orchard*		
Threats:	**Current condition:**	**Protective measures:**
Removal of remaining fruit trees	Some fruit trees regenerated but of uncertain provenance	Protect fruit trees; investigate varieties
Confusion of physical remains by littering and rubbish dumping	Previous significant amounts of litter in debris heaps and surrounding area	Remove debris heaps under supervision of archaeologist Control vehicle access and close and rehabilitate picnic area [largely achieved as at April 2008]
Access by recreational vehicles and heavy machinery may damage physical traces or cause burial in sediment movement	Previous significant uncontrolled access and trail bike use, with major track circuits cut and eroding, with major sediment movement	Minimise surface disturbance Control vehicle access and close and rehabilitate picnic area [largely achieved as at April 2008] Establish new picnic area and facilities to east
Fouling of area by human waste	Previous human waste and associated material at picnic area	Establish new picnic area with closed system toilets to east

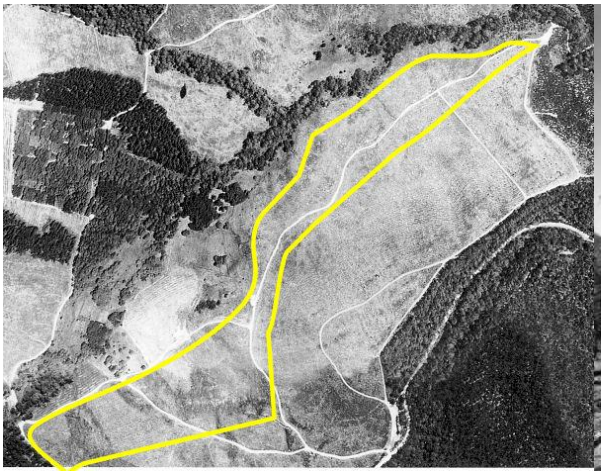
ET *Site of Australian Forestry School camp and forestry camp*		
Threats:	**Current condition:**	**Protective measures:**
None; association only	Occupied by CSIRO endangered eucalypt seed production area	Provide signage for information and education

ET *CSIRO endangered eucalypt seed production area*		
Threats:	**Current condition:**	**Protective measures:**
Short fire interval may exhaust regenerative capacity before substantial new seed is set	Strong regeneration from lignotubers and epicormic buds	Protect from fire Collect seed when mature
Physical removal in landscape works or for recreational fires		Retain all trees; prohibit removal of dead timber for recreational fires
Competition from weed species	Few weeds competing	Control woody weeds

ET *Uriarra School eucalypt planting*		
Threats:	**Current condition:**	**Protective measures:**
None; association only	Strong regeneration from lignotubers and epicormic buds	Provide signage for information and education
Competition from weed species	Few weeds competing	Control woody weeds

ET *Views over Flat and surrounding ranges*		
Threats:	**Current condition:**	**Protective measures:**
Nil	Large fire-killed exotic trees removed	Nil

EF Eastern Foothills	



Area:	c.20ha
Description:	Low gradient area between Eastern Slopes and Riparian Zone and Eastern Meadow and between Eastern Slopes and Eastern Terrace; remains of fire-killed pine
Compartments:	Parts 410 (pine 1955, 1990), 411 (pine 1955, 1990), 413B (pine 1955, 1998), 414 (pine 1955, 1994) pine debris removed 2005; 415A (pine 1956, 1994); pine debris trackrolled 2006
Landscape function:	Foothills and flats formed by granite outcrop and differential erosion Confines spread of Eastern Meadow and affects course of valley floor creek Wet areas receive drainage from Eastern Slopes and from hillslope seeps
Elements of significance:	Buffering Riparian Zone and Eastern Meadow area from vehicular traffic Wetland areas in 413B and 414 draining to Wetland Soak; wetland area in 414 functionally related to Eastern Meadow Wetland areas fed by hillslope seeps with hummock forming mosses (and possibly *Sphagnum*) Frog habitats in wetland areas Potential *Engaeus* habitat at margins with Eastern Meadow and near wetlands and springs

EF	***Buffering from vehicular traffic***	
Threats:	**Current condition:**	**Protective measures:**
Unconstrained traffic may damage adjacent meadow and riparian areas, increasing sediment flux and spreading weeds	Traffic confined largely to formed forest roads	Physically remove track between Curries Road and Five Fords Road; Close Five Fords Road to traffic [largely achieved as at April 2008]

EF	***Wetland areas***	
Threats:	**Current condition:**	**Protective measures:**
Fire reduces vegetation cover for a time; removes cover for biota (may expand potential habitat in shallow pools for a time)	Strong native regeneration post-fire with good ground cover, since compromised by debris removal	Manage fire intensity around wetland areas, with 50m buffer; exclude fire from wetland areas
Weeds compete with native plant species; may alter drainage; inhibit access	Blackberry regenerating strongly Pine wildings [largely controlled as at April 2008]	Control woody weeds in wetland areas; hand remove pine wildings before maturity
Sediment input may smother vegetation, lower wetland water tables and impair water retention capacity, increasing water flux; may infill constructed dam	Some sediment entering wetland areas from forest roads and debris removal [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement near wetlands with 'soft' engineering only
Feral animal activity (e.g. pigs, horses) may damage wetland, increasing sediment flux and spreading weeds	No feral animal activity evident	Monitor feral animal activity; address promptly if detected
Access by heavy machinery or uncontrolled use by recreational vehicles may damage wetlands and springs, increasing sediment flux and spreading weeds	Some wet areas impacted by machinery during debris removal No incursions by trail bikes evident	Exclude heavy vehicles Control other vehicle access Address any repair near wetlands with 'soft' engineering only

EF	***Habitat or potential habitat for Burrowing land crayfish*** **Engaeus cymus**	
Threats:	**Current condition:**	**Protective measures:**
Lack of knowledge on all aspects of life cycle, habitat preferences	Presence not confirmed here No survey or study undertaken in this area to assess status	Undertake research on *Engaeus* population
Fire reduces vegetation cover for a time (food and shelter)	Strong native regeneration post-fire with good ground cover, since compromised by debris removal	Manage fire intensity around wetland areas Exclude fire from wetland areas and 100m buffer where debris and regeneration for cover is encouraged
Very susceptible to alteration of environment during mating, moulting, nurturing young and at times when on the surface		Ensure riparian strips of natural vegetation at least 100m wide
Susceptible to changes in water quality and quantity	Sediment input from forest roads and debris removal [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement near wetlands with 'soft' engineering only
Vulnerable to heavy machinery, particularly when water table is high	Adjacent standing dead pines removed by machinery	No use of heavy machinery within 100m buffer

EF ***Habitat for frogs***		
Threats:	**Current condition:**	**Protective measures:**
Poor understanding of local populations	Frog call heard in many wet areas No survey or study undertaken in this area to assess status	Undertake Frogwatch monitoring
Vulnerable to fire: - likely high direct mortality - during breeding season reduces recruitment - reduces ground cover shelter (logs, leaf litter) - reduces shelter, increases predation - reduces food (small invertebrates) in short term	Strong native regeneration post-fire with good ground cover, since compromised by debris removal and burning Expansion in shallow pool habitat in places	Manage fire intensity around wetland areas Exclude fire from wetland areas and 200m buffer where debris and regeneration for cover is encouraged
Vulnerable to pesticides & herbicides in catchment	Limited chemical weed control undertaken nearby since fires	Control woody weeds in wetland areas; hand remove pine wildings before maturity
Some shallow areas may be adversely affected by infilling	Sediment input from debris removal, buffered by extant vegetation [largely controlled as at April 2008]	Address any repair near wetlands with 'soft' engineering only
Vulnerable to heavy machinery	Limited machinery activity evident adjacent to wetland areas	No use of heavy machinery within 200m of wetland areas
Vulnerable to predation by feral animals	No activity evident	Monitor; control feral animals in breeding areas
Vulnerable to impacts from management and visitor activities	Adjacent standing dead pines removed by machinery	Monitor; minimise impact of management and visitor activities

RZ	Riparian Zone

Area:	c.30 ha
Description:	Fringing vegetation adjoining creeks and open channels in Wetland area Marked by tall native trees, dense native regeneration, fire-killed willows and poplars; some includes fire-killed pine
Compartments:	Un-numbered areas and related parts 423B (pine 1993), 420B (pine 1993), 415C (pine 1955, eucalypt 1995), 425 (pine 1958, 1988) pine debris removed 2005-6; 409 (pine 1955, 1987) pines left standing; 415A (pine 1956, 1994), 415C (pine 1955, eucalypt 1995), pine debris trackrolled 2006
Landscape function:	Valley floor creek confined between banks with alluvial flats; channel flow complicated by Wetland soak; forms tight meanders below Wetland Also fringing several tributary creeks, some spring-fed, with no significant banks or flats developed
Elements of significance:	Stream bank protection; filtering of surface flow Landscape connectivity for fauna Ecotones and native buffer to wetland and meadow areas for dual habitat fauna species Some dams as habitat Likely *Engaeus* habitat Attractive settings for visitors, including areas of tree ferns Stream banks showing several depositional phases; granite outcrops accessible Dams and earth banks associated with changes of plantation forestry practice

RZ	*Stream bank protection; filtering of surface flow*	
Threats:	**Current condition:**	**Protective measures:**
Fire reduces vegetation cover for a time; removes cover for biota	Strong native regeneration post-fire with good ground cover, not compromised by debris removal	No deliberate application of fire
Fire increases water yield for a time; increased stream flow and sediment loads may undercut stream banks and transport riparian soil	Following fire, banks were undercut and meanders breached, with some significant slumping; since stabilised by vegetation recovery Woody debris is damming the stream, slowing flow and causing suspended sediment to drop	Monitor undercutting and slumping Address if required with 'soft' engineering where possible
Weeds compete with native plant species	Blackberry regenerating; some other weeds suppressed by native vegetation recovery	Control woody weeds in riparian areas, with attention to risks of chemical pollution of waterways
Sediment input from slopes may smother vegetation	Some sediment entering riparian areas from debris removal [largely controlled as at April 2008]	Address sediment movement with 'soft' engineering only
Feral animal activity (e.g. pigs, horses) may damage, increasing sediment flux and spreading weeds	No feral animal activity evident	Monitor feral animal activity; address promptly if detected
Access by heavy machinery or uncontrolled use by recreational vehicles may damage, increasing sediment flux and spreading weeds	Riparian areas largely excluded from debris removal Dense vegetation recovery inhibits trail bikes in most areas Direct sediment input is evident from steep forest road crossings	Address sediment movement with 'soft' engineering where possible Stabilise forest road crossings and close steep roads to traffic [partly achieved as at April 2008]

RZ	*Landscape connectivity for fauna*	
Threats:	**Current condition:**	**Protective measures:**
Fragmentation of vegetation along streams and upslope diminishes value for wildlife movement	Continuity along Condor Creek, except part of western side adjacent to Wetland/peatland compartments 423, 424 Zone narrow in southern parts connecting to Namadgi NP, compartments 425, 428 Continuity upslope to west and north on Musk and Coree Creeks; no upslope continuity to east	Supplement regeneration with planting adjacent to Wetland/ peatland compartments 423, 424 Close track and widen zone between compartments 425, 428 [partly achieved as at April 2008] Supplement regeneration with planting along drainage lines to east, compartments 413, 428, 429, between 410, 411

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RZ	*Ecotones for dual habitat species; buffer for meadows and wetlands*	
Threats:	**Current condition:**	**Protective measures:**
Physical removal of forest structure or conversion of grassland to forest	Eucalypt areas regenerated strongly Adjacent fire-killed pines removed; good ground cover in most areas	Maintain water tables in open areas, enhancing if required with 'soft' engineering

RZ	*Dams for habitat*	
Threats:	**Current condition:**	**Protective measures:**
Sediment input may smother vegetation and infill constructed dams	Vegetation regenerated strongly Some sediment entering from debris removal [largely controlled as at April 2008]	Address sediment movement with 'soft' engineering where possible

RZ	***Likely habitat for burrowing land crayfish* Engaeus cymus**	
Threats:	**Current condition:**	**Protective measures:**
Lack of knowledge on all aspects of life cycle, habitat preferences	Presence not confirmed here No survey or study undertaken in this area to assess status	Undertake research on *Engaeus* population
Fire reduces vegetation cover for a time (food and shelter)	Strong native regeneration post-fire with good ground cover,	Exclude fire from 100m buffer where debris and regeneration for cover is encouraged
Very susceptible to alteration of environment during mating, moulting, nurturing young and at times when on the surface	Strong recovery of dense forest cover	Ensure riparian strips of natural vegetation at least 100m wide
Susceptible to changes in water quality and quantity	Past sediment input from forest roads and debris removal [largely controlled as at April 2008]	Maintain sediment control structures on forest roads Address sediment movement near wetlands with 'soft' engineering only
Vulnerable to heavy machinery, particularly when water table is high	Adjacent standing dead pines removed by machinery	No use of heavy machinery within 100m buffer

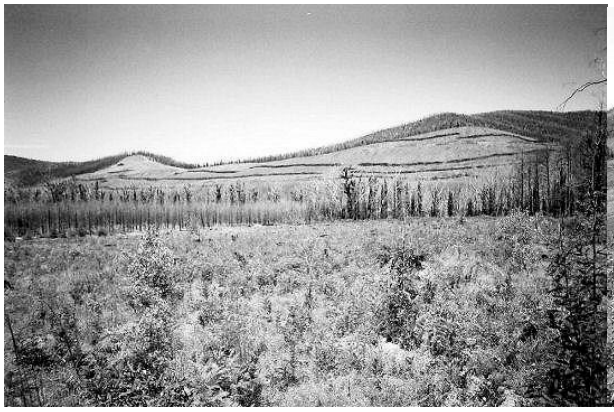
RZ	***Attractive setting for visitors***	
Threats:	**Current condition:**	**Protective measures:**
Fire alters and blackens landscape; may destroy visitor infrastructure	Strong recovery of native vegetation Signs, footbridge, facilities and barriers not repaired or replaced	Redevelop visitor infrastructure, with new picnic area to the east, new traffic barriers, interpretive signs and walking tracks
Weeds compete with native plant species; may inhibit access	Blackberry regenerating; some other weeds suppressed by native vegetation recovery	Control woody weeds in riparian areas, with attention to risks of chemical pollution of waterways
Littering and rubbish dumping, human waste	Previous significant rubbish and waste, localised around picnic area [largely controlled as at April 2008]	Close and rehabilitate picnic area [largely achieved as at April 2008] Establish new picnic area and facilities to east, with closed system toilets
Removal of ferns and rocks reduces amenity	No impacts evident	Monitor removal of rocks and ferns; address promptly if detected
Uncontrolled use by recreational vehicles may affect amenity and perceptions of safety	Dense vegetation recovery inhibits trail bikes in most areas	Address sediment movement with 'soft' engineering only Control vehicle access

RZ	***Stream bank deposits and granite outcrops***	
Threats:	**Current condition:**	**Protective measures:**
Fire increases water yield for a time; increased stream flow and sediment loads may undercut stream banks and transport soil	Following fire, banks were undercut and meanders breached, with some significant slumping; since stabilised by vegetation recovery	Monitor incision, undercutting or slumping of banks Address with 'soft' engineering only
Fire causes granites to exfoliate	Significant spalling and exfoliation evident since fire; exposed surfaces now weathering	None required
Lack of understanding of environmental history record in stream bank deposits	No survey or study undertaken in this area	Undertake research into environmental history record in stream bank deposits

RZ	***Dams and earth banks associated with changes of plantation forestry practice***	
Threats:	**Current condition:**	**Protective measures:**
Sediment input may infill constructed dams and banks	Vegetation regenerated strongly; some sediment entering from debris removal	Retain dams and banks Address sediment movement

ES Eastern and Southern Slopes






Area:	c.160 ha
Description:	Steep to moderate slopes falling from 950m in south, 850m in east, to 730m at northern end of Flat area
Compartments:	Part 411 (pine 1955, 1990), 412 (pine 1955, 1990), part 414 (pine 1955, 1994), part 410 (pine 1955, 1990), part 413A (pine 1955, 1990), part 413B (pine 1955, 1998), 429 (pine 1959), 428 (pine 1958, 1998), 430 (pine 1959, cleared), 431 (pine 1959, cleared), 432 (pine 1994), debris removed 2005
Landscape function:	Source of runoff on steep and moderate slopes and delivery to valley floor creek and meadow area
Elements of significance:	Vital part of scenic backdrop to Flat area Views from south over Flat from Brindabella Road near top of Curries Road and vicinity of Reids Pinch Views from east over Flat from hill in 412 Southern slopes adjoin Namadgi National Park; potential connectivity for fauna Part of Eastern slopes adjoin Special Purpose Reserve; potential connectivity for fauna

ES	***Scenic backdrop***	
Threats:	**Current condition:**	**Protective measures:**
Clearing affects amenity	Strong recovery of native vegetation, strongly set back by debris removal and burning where fire-killed pines could have been left standing	No further clearing
Wildfire bares slopes for a time	Strong recovery of native vegetation, strongly set back in parts by debris removal and burning	Manage fire intensity
Roading may be visually intrusive and increase sediment flux	Forest roads were renewed since fire; some since closed Some roads are chronically wet and muddy	Allow open access only to Curries Road and Pabral Road and close other roads to traffic [largely achieved as at April 2008] Consider sealing Curries Road as far as new picnic area

ES	***Views over Flat***	
Threats:	**Current condition:**	**Protective measures:**
Uncontrolled visitor/vehicular access to lookout points has implications for safety and amenity, and may affect fire protection and sediment movement	Removal of fire-killed pine has opened up wide views over the Flat and enclosing hills and ridges	Develop lookout point(s) from prominent hill on eastern side, with associated interpretation, accessed from car park near Brindabella Road Develop lookout point from Brindabella Road, in conjunction with safety improvements, with associated interpretation

ES	***Adjoins Namadgi National Park in south; connectivity for fauna***	
Threats:	**Current condition:**	**Protective measures:**
Pine wildings or other weeds may invade Namadgi	Does not appear to be significant	Hand removal of wildings before maturity
Recreational vehicle users may be unaware of the boundary with Namadgi, resulting in inappropriate access and use	Recreational vehicles are attracted to mud wallows and the challenge of steep sections on forest roads [largely controlled as at April 2008]	Control vehicle access Allow open access only to Curries Road and Pabral Road, and close other roads to traffic [largely achieved as at April 2008] Consider inclusion within Namadgi
Fragmentation of vegetation from streams upslope diminishes value for wildlife movement	Riparian Zone narrow in southern parts connecting to Namadgi NP, compartments 425, 428	Close track and widen zone between compartments 425, 428

ES	***Adjoins Special Purpose Reserve in east; connectivity for fauna***	
Threats:	**Current condition:**	**Protective measures:**
Pine wildings or other weeds may invade Special Purpose Reserve	Does not appear to be significant	Hand removal of wildings before maturity
Recreational vehicle users may be unaware of the boundary with the Special Purpose Reserve, resulting in inappropriate access and use	Recreational vehicles are attracted to the challenge of steep sections on forest roads	Control vehicle access Allow open access only to Curries Road and Pabral Road, and close other roads to traffic [largely achieved as at April 2008]
Fragmentation of vegetation along streams and upslope diminishes value for wildlife movement	No continuity from Condor Creek upslope to east	Supplement regeneration with planting along drainage lines to east, compartments 413, 428, 429, between 410, 411

WS Western Slopes

Area:	c.125 ha
Description:	Steep to moderate lower slopes of Mt Coree (below Namadgi National Park boundary), falling from 1100m to 770m, adjoining parts Fastigata Creek and Condor Creek Areas now cleared of fire-killed pine; tall native timber above, wet gully native vegetation
Compartments:	423A (native), 423B (pine 1993), 423C (pine 1993), 427A (cleared), 427B (pine 1988), 426 (pine 1988), 424 (pine 1958, 1988), 425 (pine 1958, 1988); pine debris removed 2006 Arboretum area: 422, 421, 420A (pine 1958); limited salvage 2005; debris removed 2006
Landscape function:	Source of runoff on steep and moderate slopes and delivery to valley floor creek, tributary creeks (some also spring-fed) and meadow area
Elements of significance:	Vital part of scenic backdrop to Flat area; parts visible from Canberra city Wet gully habitat on Fastigata Creek Site of conifer arboretum; regeneration may be of continuing value to forestry research Attractive settings for visitors, including wet gullies with tree ferns and blanket leaf Adjoins Namadgi National Park Dams and earth banks associated with changes in plantation forestry practice

WS	***Scenic backdrop***	
Threats:	**Current condition:**	**Protective measures:**
Clearing affects amenity	Strong recovery of native forest. Delayed debris removal and burning has bared steep slopes where fire-killed pines could have been left standing.	No further clearing, other than reduced density in 'collar' around conifer arboretum site and selective removal on arboretum site
Wildfire bares slopes for a time	Strong recovery of native vegetation, since compromised by delayed debris removal and burning Rock outcrops remain prominent	Manage fire intensity Protect regeneration on arboretum site from all fire
Roading may be visually intrusive and increase sediment flux	Forest roads were renewed since fire, some after being stable and barely visible for some years Some roads are chronically wet and muddy Some have since been closed	Allow open access only to Curries Road and Pabral Road and close other roads to traffic [largely achieved as at April 2008]

WS	***Wet gully habitat***	
Threats:	**Current condition:**	**Protective measures:**
Fire may open canopy to expose gully to drying out	Native vegetation including tree ferns regenerating strongly	Manage fire intensity
Damage from users, including removal of ferns and rocks	No impact evident	Close forest roads not essential for emergency services [largely achieved as at April 2008] Consider inclusion within Namadgi
Pine wildings or other weeds may invade gully	Some pine wildings but does not appear to be significant	Hand removal of wildings before maturity

WS	***Site of conifer arboretum***	
Threats:	**Current condition:**	**Protective measures:**
Site may be overwhelmed by native regeneration, with loss of 'signature form' in the landscape	Strong natural regeneration of natives and softwoods, since strongly compromised by delayed debris removal, except in area of early salvage logging	Retain the original square area west of Pabral Road, defined by the perimeter track (retained but closed to traffic and stabilised) [largely achieved as at April 2008] Allow natural regeneration of selected softwood species within the square only Control exotic species and wildings outside the square (except mature fire-survivor conifers near Condor Creek, retained for interpretation) Favour species for regeneration by selective removal within the square Remove all invasive species and *P.radiata* wildings Use signage and other facilities for information and education Consider small recreational node for walkers and vehicle-based visitors
Fire may destroy conifers before maturity		Protect regeneration within the square from all fire Retain and manage reduced stand density within the square for fire protection

WS	***Attractive settings for visitors***	
Threats:	**Current condition:**	**Protective measures:**
Damage from users, including removal of ferns and rocks, inappropriate access and use	Minimal impact evident	Close forest roads not essential for emergency services [largely achieved as at April 2008] Consider inclusion within Namadgi

WS	***Adjoins Namadgi National Park***	
Threats:	**Current condition:**	**Protective measures:**
Pine wildings or other weeds may invade Namadgi	Does not appear to be significant	Hand removal of wildings before maturity
Recreational vehicle users may be unaware of the boundary, resulting in inappropriate access and use	Recreational vehicles are attracted to mud wallows and the challenge of steep sections on forest roads	Control vehicle access Allow open access only to Curries Road and Pabral Road, and close other roads to traffic [largely achieved as at April 2008] Consider inclusion within Namadgi
Fragmentation of vegetation along streams and upslope diminishes value for wildlife movement	Continuity along Condor Creek, except part of western side adjacent to Wetland/peatland compartments 423, 424 Riparian Zone narrow in southern parts connecting to Namadgi NP, compartments 425, 428 Continuity upslope to west on Musk Creek	Supplement regeneration with planting adjacent to Wetland/peatland compartments 423, 424 Close track and widen Riparian Zone between compartments 425, 428

WS	***Dams and earth banks associated with changes of plantation forestry practice***	
Threats:	**Current condition:**	**Protective measures:**
Sediment input may infill constructed dams and banks	Vegetation regenerated strongly; some sediment entering from debris removal [largely controlled as at April 2008]	Retain dams and banks Address sediment movement

NS Northern Slopes

Area:	c.45 ha
Description:	Steep lower slopes in foothills of Mt Blundell 710-890M
Compartments:	419 (pine 1993), part 418 (pine 1993), pine debris removed 2006; 417 (pine 1987) pine left standing
Landscape function:	Receive runoff from steep northern and western slopes and deliver to several creeks; spring seepage feeding Western Meadow
Elements of significance:	Steep scenic backdrop to Flat area Adjoins Namadgi National Park Adjoining parts of Coree Creek, Musk Creek, and part Condor Creek Protected sedgeland community in former stream course

NS	***Scenic backdrop***	
Threats:	**Current condition:**	**Protective measures:**
Clearing would affect amenity	Strong recovery of native forest. Fire-killed pines left standing on some steep slopes.	No clearing
Wildfire bares slopes for a time	Strong recovery of native vegetation Rock outcrops remain prominent	Manage fire intensity
Roading may be visually intrusive and increase sediment flux	Forest roads were renewed since fire, some after being stable and barely visible for some years Some roads are very steep; some are chronically wet and muddy Some have since been closed	Remove and rehabilitate old forest road down face of Mount Blundell Allow open access only to Pabral Road; close other roads to traffic [largely achieved as at April 2008]

NS	***Adjoins Namadgi National Park***	
Threats:	**Current condition:**	**Protective measures:**
Pine wildings or other weeds may invade Namadgi	Does not appear to be significant	Hand removal of wildings before maturity
Recreational vehicle users may be unaware of the boundary, resulting in inappropriate access and use	Recreational vehicles are attracted to mud wallows and the challenge of very steep sections on forest roads	Control vehicle access Remove and rehabilitate old forest road down face of Mount Blundell Allow open access only to Pabral Road; close other roads to traffic [largely achieved as at April 2008]

NS	***Adjoins parts of Coree Creek, Musk Creek and parts of Condor Creek***	
Threats:	**Current condition:**	**Protective measures:**
Weeds compete with native plant species	Blackberry regenerating; some other weeds suppressed by native vegetation recovery	Control woody weeds in riparian areas, with attention to risks of chemical pollution of waterways
Sediment input from slopes may smother vegetation	Some sediment entering riparian areas	Address sediment movement with 'soft' engineering where possible
Feral animal activity (e.g. pigs, horses) may damage, increasing sediment flux and spreading weeds	No feral animal activity evident	Monitor feral animal activity; address promptly if detected
Access by heavy machinery or uncontrolled use by recreational vehicles may damage, increasing sediment flux and spreading weeds	Riparian areas largely excluded from debris removal Dense vegetation recovery inhibits incursions in most areas; damage from recreational users attempting steep climbs Past direct sediment input evident from steep forest road crossings	Address sediment movement with 'soft' engineering where possible Stabilise forest road crossings and close steep roads to traffic [largely achieved as at April 2008]

NS	***Sedgeland community in former stream course***	
Threats:	**Current condition:**	**Protective measures:**
Sediment input from slopes may smother vegetation	Does not appear to be significant	
Weeds compete with native plant species	Does not appear to be significant	Control woody weeds
Feral animal activity (e.g. pigs, horses) may damage, increasing sediment flux and spreading weeds	No feral animal activity evident	Monitor feral animal activity; address promptly if detected
Access by heavy machinery may damage, increasing sediment flux and spreading weeds	None evident	

SHANNONS FLAT

A Five Fords (Condor Corridor)	
Description:	Extends from the northern end of Blundells Flat where Condor Creek enters a narrow gorge and is flanked by alluvial flats, to Thompsons Corner (Brindabella Road bridge); gentle fall 720m to 680m over c.3km
Compartments:	409, 408, part 407, former 403, 402, 401 (all pine 1955, 1987) ; debris removed 2005
Landscape function:	Stream valley
Elements of significance:	*Eucalyptus camphora* *Eucalyptus fastigata* forest Wet gully vegetation on Condor Creek Former school house and orchard site Steep scenic backdrop to Shannons Flat area (part within Namadgi National Park) Adjoins Special Purpose Reserve Picnic area near Thompsons Corner
Threats:	Erosion from slopes Incision of Condor Creek and undercutting of banks/alluvial flats Woody weeds; pine wildings Fire impact on *E.camphora* Machinery disturbance of *E.camphora* and school house site
Current condition:	Strong regeneration after fire Some woody weed growth Minimal disturbance except for uncontrolled vehicle access along Five Creeks Road
Protective measures:	Water quality emphasis with riparian protection Control erosion No machinery access between Five Creeks Road and Condor Creek Close track (Five Creeks Road) to traffic (service vehicles only) and retain as part of walking track from Uriarra to Blundells Interpret *E.camphora* and schoolhouse site No deliberate application of fire in area of *E.camphora* Control woody weeds; hand remove pine wildings before maturity

B Wetland (Shannons Flat)	
Description:	Pools and soaks on approx. 500m of lower part of Wombat Creek (below Brindabella Road) and associated gently sloping soaks on hillside to east; 700-720m
Compartments:	part 404 (pine 1955, 1987) ; debris removed 2005
Landscape function:	Valley floor receiving system reducing and filtering water flow
Elements of significance:	Ecosystem services in stream and soaks *Eucalyptus camphora*
Threats:	Sediment input from slopes Woody weeds; pine wildings Fire impact on *E.camphora* Machinery disturbance of *E.camphora* and humic soils in soaks
Current condition:	Strong regeneration after fire, compromised by debris removal Woody weeds on flats
Protective measures:	Wetland protection and riparian protection Control erosion from slopes above; consider water spreading No machinery access in riparian buffer or on soaks Supplementary native planting on slopes above wetlands; community engagement No deliberate application of fire in area of *E.camphora* Control woody weeds; hand remove pine wildings before maturity

C Wombat Creek	
Description:	About 1500m of creek above wetland areas and below Brindabella Road Steep slopes draining to Wombat Creek Fire-killed pine on slopes, tall native forest and some exotics in creekline
Compartments:	405, 406, part 407, part 404 (all pine 1955, 1987); debris removed 2005
Landscape function:	Stream course
Elements of significance:	Drains to wetland system and Condor Creek Links to Special Purpose Reserve and native timber corridor to Blundell Hill
Threats:	Sediment input from slopes Woody weeds; pine wildings
Current condition:	Strong regeneration after fire, some compromised by debris removal Woody weeds
Protective measures:	Riparian protection Control erosion Control woody weeds; hand remove pine wildings before maturity

PART E CONSERVATION POLICY AND WORKS

This Part sets out:

- Conservation Policy which responds to heritage significance of the place (**Part C**); and
- Works which respond to threats and apply protective measures in accordance with Conservation Policy (**Part D**).

These are itemised for both Blundells Flat and Shannons Flat.

Further details of proposals for Interpretation are in **Part F**; for Implementation in **Part G**; and Monitoring and Review in **Part H**.

Conservation Policy includes:

- overall policies and vision for the place
- the philosophical approach for retention, reinforcement or revelation of evidence, form, spaces, character, qualities and meanings; and
- feasible, compatible and appropriate uses.

This encompasses more detailed policies:

- to cope with pressures and threats
- for interpretation and presentation
- to ensure that change is compatible with significance
- for continued use or change of use
- to set conditions for removal of physical evidence or redevelopment
- to identify sites or requirements for new development
- for recording before alteration or removal
- for treatment of specific parts related to assessment of significance
- to reinforce significant aspects of the setting, character and atmosphere
- for coordinated management structures and practices to promote policies
- for further research and enquiry
- or access to advice and informed supervision of works
- for keeping a record of actions affecting the place
- for continuing monitoring and review of practices
- for periodic review of policies.

BLUNDELLS FLAT

Vision for Blundells Flat

Blundells Flat is part of a protected area which extends from the Condor Creek bridge at Thompsons Corner to Namadgi National Park on the north-west extremities of the ACT.

Blundells Flat is recognised as a distinctive place in the north-west corner of the ACT and is highly valued by the community of the ACT and region for its scenic amenity, valley floor wetland systems, diverse native vegetation, abundant wildlife and numerous layers of history.

Extensive volunteer effort supports adaptive management of these values.

At the broadest level, it is known and appreciated from vehicles passing along the Brindabella Road, where a scenic lookout offers views over the Flat, nestled in the bottom of a valley dominated by Mount Coree, Mount Blundell and Devils Peak.

The place itself receives many visitors throughout the year, including recreational drivers and riders passing through the place on their way to bush roads in the adjacent Namadgi National Park in the ACT and Brindabella National Park in NSW.

On the descent to Blundells Flat via the access road from the Brindabella Road, vehicle-based visitors gain widening views of Mount Coree and the Brindabella Range in the west, opening out to reveal Mount Blundell in the north. Once they arrive at the relocated picnic area, visitors have a strong sense of being encircled by timbered hills with rocky outcrops. The extent of the flats in the valley bottom can be readily appreciated through the regenerating native vegetation, which is more open along the access road and on the flats.

Those visitors who pause at the place can enjoy low-key day-use amenities. From these facilities short loop walks can be taken, with signs interpreting key elements in the landscape.

Along the walking tracks are cultural heritage features such as the site of Blundells farmhouse and orchard, the site of the old forestry camp, and three arboreta (conifers, poplars and eucalypts) where interpretation unfolds successive stories of past layers of historic occupation and use, ranging from Aboriginal use through pastoral settlement to Federal Capital uses such as forestry, research and education, and protection of Canberra's water supply catchment.

Other features and interpretation relate to natural heritage, including wetland and stream ecology, and uncommon or threatened species and communities.

Together these layers of natural and cultural heritage significance offer a rich learning experience, and the area is frequently visited by students from educational institutions in the region.

Some of these students assist with on-going research and monitoring of water quality, biodiversity and threatened species and communities.

Other visitors arrive via a marked walking track from Uriarra through Five Fords (Thompsons Corner), following much the same path used by generations of travellers, from Aboriginal people to early explorers and pastoralists, miners, foresters and those seeking recreation in the mountains.

This track links via the Brindabella Range to the Australian Alps Walking Track, which extends all the way to Valhalla in Victoria.

Overall policies for Blundells Flat

Management of Blundells Flat is to:

- maximise benefits to water quality and biodiversity conservation from protection of all wetland systems, riparian zones, and habitats or potential habitats for threatened species and communities
- protect cultural heritage values of the place by measures which are consistent with the above
- restore the place and its curtilage to a condition such that it would be suitable for inclusion within Namadgi National Park (even if that does not occur for other reasons)
- develop the area as a significant hub for presentation and interpretation of natural and cultural heritage, including passive enjoyment of the environment and nature-based and cultural tourism.

Conservation philosophy for Blundells Flat

The primary conservation philosophy for management and use of Blundells Flat is to ensure that all of the natural and cultural heritage values of the area are recognised, appropriately valued and protected in decision-making.

Conservation management and presentation of the area should be based on:

- recognition of the distinctive qualities of the area in terms of diversity and layers of natural and cultural heritage values available for interpretation and education, within easy reach of Canberra, and currently outside the formal reserve system
- recognising that the values of the area have been obscured due to past land use and management, and ensuring that maximum advantage is gained from the opportunities afforded by changed policy and management for the Lower Cotter catchment since the January 2003 wildfires
- a coordinated approach to ensure that management for water quality, management for biodiversity, and management for cultural heritage values are properly integrated and mutually supportive
- understanding of functional interactions between the place and its surroundings, including both Namadgi National Park and Brindabella National Park (in the context of the Australian Alps national parks), and the Condor Creek corridor and associated historic routes to Uriarra and the Canberra Plain
- buiding resilience into the landscape, including rehydrating wetland systems, enhancing their capacity for slow release of water, and restoring and enhancing ecological connectivity in riparian zones and upslope to timbered hills and ridges
- reconnecting people to the place in its new form, building a constituency of support and advocacy for protection of its values, and maximising engagement of individuals and groups in protection and restoration works, monitoring and research, and interpretation and education activities.

POLICIES AND WORKS – BLUNDELLS FLAT

BF	Policy and Works
1.0	**Coordinating management structures and practices to promote policies**
1.1	Seek endorsement of this Conservation Management Plan from the ACT Heritage Council to enable continuing management in accordance with the provisions of this Plan without the need to refer all works and development proposals to the Council
1.2	Pending endorsement of this Plan, refer all works and development proposals to the ACT Heritage Council for comment
1.3	Nominate the Blundells Flat place to the ACT Heritage Register based on the assessment of heritage significance in this Plan
1.4	Consult with representatives of the Ngun(n)awal people in implementing provisions of this Plan, through the Heritage Unit in the first instance
1.5	Ensure liaison in implementing provisions of this Plan between all agencies responsible for management of land, catchment, biodiversity and cultural heritage
1.6	Ensure liaison with managers of Namadgi National Park (ACT) and Brindabella National Park (NSW) in implementing provisions of this Plan
1.7	Designate all parts of the Condor Creek catchment upstream from the Condor bridge (Thompsons Corner) as a Special Purpose Reserve in the Territory Plan
1.8	Pursue recognition of the place and the rest of the Special Purpose Reserve as part of the Australian Alps national parks system (Note: this can occur regardless of whether the place is within a national park)
1.9	Foster development and effective coordination of community-based structures to encourage active participation in planning, restoration, maintenance, interpretation, and monitoring of the place
1.10	Promote the values of the place and of (re)development works for passive recreational use, interpretation and education in the context of Canberra Centenary celebrations in 2013
1.11	Recognise that fostering increased community awareness of the values of the place is a means to increase security and protection of the place
1.12	Secure adequate, consistent and medium- to long-term funding to ensure that restoration and stabilisation works can be completed, and that interpretation, education and community engagement can be sustained

2.0	**Reinforcing significant aspects of the setting, character and atmosphere**
2.1	Manage the place with due recognition that its natural and cultural heritage values (as set out in the statement of significance) are interdependent within a cultural landscape which includes its curtilage and setting
2.2	Focus visitor management in the place and its curtilage on protecting and interpreting its values and to ensure a progressive shift in the nature of use towards passive enjoyment
2.3	Undertake (re)development to facilitate public access to, and understanding of, the place while ensuring protection of all values

BF	Policy and Works
3.0	**Managing landscapes**
3.1	Manage vegetation in the place to simulate the landscape of the early settlement phase, with native regeneration encouraged and exotic species controlled in all but the Blundells farmhouse and orchard site, the original square of the Blundells Arboretum, and the original part of the poplar arboretum (Note: this aims to balance recognition and valuing of phases of European occupation with enhancement of water quality and biodiversity conservation)
3.2	Fell fire-killed exotic trees in the Wetland soak across the direction of stream flow and leave on site, controlling any live willows (prior to remediation of wetland incision) [largely achieved as at April 2008]
3.3	Establish monitoring of native regeneration patterns and consider intervention to maintain ecotone structure between forest and open areas and to enhance structural and floristic diversity and ecological function (without compromising adequate width of riparian zone) e.g. regeneration of eucalypts in the Eastern Meadow may need to be selectively thinned (by hand) if this threatens to reduce substantially the area of grassland and soaks
3.4	Provide horticultural management for regenerating trees in the endangered eucalypt seed orchard to maximise any potential value for seed production, and interpret this use
3.5	Retain but control exotic species on the Blundells farmhouse and orchard site, investigate the value of remaining fruit tree varieties, and interpret the layers of occupation in this precinct
3.6	Allow regeneration of conifers within the original square of the Blundells Arboretum (west of Pabral Road and bounded by the closed and stabilised track), supplemented with wide-spaced and discontinuous planting of non-invasive conifers (only if required), and interpret the history of this precinct. (Note: Remove pine wildings and other regeneration of pines and blue gums outside this precinct)
3.7	Fell and remove all fire-killed trees in the poplar arboretum, allowing sucker regeneration to continue within the southernmost part and behind the old fence (to be protected and retained), with prompt and sustained control of suckers outside the fence and in the northernmost part (where biodiversity values are at risk) [partly achieved as at April 2008], and interpret the history of this precinct
3.8	Manage vegetation in all parts of the curtilage to reinstate a native bushland backdrop to the place, by encouraging native regeneration and removing pine wildings, with supplementary planting of native species where required
3.9	Within the curtilage manage for a reduced fuel zone (wide tree spacings, low understorey, running broadly north east-south west) in those parts of the Western Slopes around the Blundells Arboretum (Compartment 423) (Note: this aims generally to protect from fire conifer regeneration in the arboretum square and also to maintain by slashing or other means an even lower density 'collar' around the square to continue to distinguish this element in the landscape)
3.10	Within the curtilage manage for a reduced fuel zone (wider tree spacings, low understorey, running broadly north east-south west) in those parts of the Eastern and Southern Slopes between Curries Road and Namadgi National Park (Compartments 413, 428, 429, 430, 431) with the exception of buffers for creeks, seeps and wetlands where cover will be restored and maintained for water quality and biodiversity
3.11	Within the curtilage consider needs for highly selective vista cutting below lookout points on the Brindabella Road (Compartments 430, 431) and the eastern ridge (Compartments 411 and 412) and integrate this measure with strategies for reduced fuel zones

BF	Policy and Works
4.0	**Providing and managing access**
4.1	Retain the current main access road (Curries Road) from Brindabella Road
4.2	Consider sealing the access road to the base of the slope for water quality protection (Note: this might be in conjunction with re-routing of the base of the road away from the former picnic area and to increase options for a new picnic area)
4.3	Close all roads to general public access other than Curries Road and Pabral Road; these become the only 'through roads' accessible to the public [largely achieved as at April 2008]
4.4	Close but retain the road from Curries Road along the eastern side of the place for 'service vehicles only'; re-label this as 'Five Fords Road' (for historical association), and use as part of a walking route along Condor Creek [partly achieved as at April 2008]
4.5	Close the tracks from Curries Road along the ridge to the east of the place between Condor and Wombat Creek catchments and connecting to Five Fords Road [largely achieved as at April 2008]; related to provision of pedestrian access to a lookout from this ridge
4.6	Remove and rehabilitate the lower link road between Curries Road and the road along the eastern edge of the place [partly achieved as at April 2008]
4.7	Remove and rehabilitate the track down Mount Blundell from Blue Range, with particular attention to steep sections and the Coree Creek crossing [largely achieved as at April 2008]
4.8	Remove and rehabilitate the link road from Pabral Road to Five Fords Road, with particular attention to rehabilitating wallows and creek crossings [largely achieved as at April 2008]
4.9	Remove and rehabilitate the steep lower reaches of the track linking Brindabella Road and Curries Road on the boundary of Namadgi National Park, with emphasis on water quality in Condor Creek and the Wetland soak
4.10	Close, stabilise and vegetate the surface of former compartment boundary roads (and the road around the original square of the Blundells Arboretum) to reduce runoff and improve water quality [largely achieved as at April 2008]
4.11	Ensure naming of tracks and precincts accurately reflects historic information e.g. relabelling of Five Fords Road rather than 'Five Creeks Road'
4.12	Improve pedestrian access, visitor safety and amenity within the place by development of a new low key picnic area adjacent to the Eastern Terrace, with toilets (closed system) and associated walking tracks and interpretation

5.0	**Protecting Aboriginal cultural heritage**
5.1	Integrate Aboriginal cultural heritage elements with recognition, management and interpretation of other heritage values at the place
5.2	Liaise with Ngun(n)awal people in relation to any major decision which has the potential to affect Aboriginal places or objects
5.3	Research potential Aboriginal heritage within a 50m zone around the Wetland, Eastern Meadow and Western Meadow areas, with survey carried out by a suitably qualified archaeologist and in association with Ngun(n)awal people
5.4	Ensure training for land managers to recognise and record any Aboriginal places and objects which are encountered in works or routine activities
5.5	Ensure that any Aboriginal places and objects are notified as required by the Heritage Act, and entered on the ACT Heritage Register
5.6	Ensure that precise locations of Aboriginal places and objects are not publicised or labelled
5.7	Include advice in interpretive signs about Aboriginal occupation of the area, and the importance and protected status of Aboriginal places and objects

BF	Policy and Works
6.0	**Protecting fabric and artefacts of European occupation**
6.1	Retain on site any fabric and artefacts remaining from European occupation in the Blundells farmhouse and orchard site, the original square of the Blundells Arboretum, and the original part of the poplar arboretum
6.2	Retain but do not repair or reconstruct the old fence at the poplar arboretum (unless required to mark the line of control of poplar suckers to protect biodiversity values)
6.3	Consult with the Heritage Unit on any proposed works which have the potential to disturb or damage remaining fabric and artefacts from European occupation in the Blundells farmhouse and orchard site, the original square of the Blundells Arboretum, and the original part of the poplar arboretum
6.4	Record any fabric or artefacts from European occupation before any disturbance or removal, in consultation with the Heritage Unit
6.5	Prepare an inventory of items of moveable cultural heritage currently at the place and known to have been removed, and attempt to locate those removed in the past (e.g. iron boiling pot, potsherds)

7.0	**Protecting and enhancing ecological function**
7.1	Establish as the primary focus for conservation management the protection and enhancement of ecosystem service functions of wetland, meadow and riparian areas, including alluvial flats
7.2	Prohibit machinery and vehicle access within 500m of the Wetland, Eastern Meadow, Western Meadow, Riparian Zone and hillside seeps and drainage lines in the Eastern Slopes and Eastern Foothills (for habitat protection of Corroboree Frog, other frogs and *Engaeus*)
7.3	Prohibit application of fire in wetland, meadow and riparian areas
7.4	Give priority to control of willows, blackberry and other woody weeds in wetland, meadow and riparian areas
7.5	Fell fire-killed exotic trees into Wetland soak across the line of low to slow water flux and enhance safety and visibility [largely achieved as at April 2008]
7.6	Consider enhancement of woody debris 'dams' in Condor Creek to slow flow, encourage in-stream pooling, raise water levels and enhance habitat
7.7	Control incision of the Wetland soak with 'soft' engineering e.g. coir logs, using an adaptive management approach to reduce any excessive hydrostatic head or other undesirable hydrological impact
7.8	Control sediment runoff from the former current picnic area after prohibiting further vehicle access, rehabilitating to stabilise ground surface, and minimising machinery use [largely achieved as at April 2008]
7.9	Control the effect of drains in the Eastern Meadow by use of hay bales (no change to physical form due to cultural heritage value) [commenced; require renewal as at April 2008]
7.10	Increase lateral spread of water in the Eastern Meadow by hand placement of timber felled in the poplar arboretum
7.11	Restore hydrological connection between the Eastern Meadow and soaks in the Eastern Foothills (Compartment 413), as part of closing and rehabilitating the low level track linking Five Fords Road and Curries Road [partly achieved as at April 2008]
7.12	Control incision at the lower end of the Western Meadow with 'soft' engineering
7.13	Consider woody debris 'dams' in the lower modified section of Musk Creek and diversion of some flow into the Western Meadow to slow flux and filter water
7.14	Maintain linear continuity and restore upslope connectivity of riparian areas, with emphasis on enhancing corridors along drainage lines to Namadgi National Park in the west, south and north, and to the Special Conservation Reserve in the east; corridors should be 100m wide for *Engaeus* habitat
7.15	Intercept and filter sediment from tracks left open for public access e.g. Curries Road and Pabral Road [largely achieved as at April 2008]
7.16	Monitor vegetation and hydrology in the Wetland, Eastern Meadow and Western Meadow

BF	Policy and Works
8.0	**Addressing knowledge gaps**
8.1	Undertake a flora and fauna inventory of wetland, meadow and riparian areas, engaging community groups and individuals
8.2	Investigate the status and habitat requirements of *Engaeus cymus*
8.3	Investigate the status and habitat requirements of Northern Corroboree Frog, including potential manipulation of pond types as part of recovery actions for the threatened species at a lower elevation site
8.4	Develop indicators of water quality and in-stream habitat quality, and engage the community in monitoring at key points
8.5	Continue investigation of the environmental history record of the peatland and extend to the meadow areas and sediments in the riparian zone and alluvial flats
8.6	Document the nature and composition of temperate grassland types present in the place and relate to communities listed as threatened in the ACT
8.7	Evaluate options for (re)introduction of *Eucalyptus camphora* to Blundells Flat
8.8	Investigate the potential value of seed stock for *Eucalyptus parvula* variants
8.9	Investigate the varieties and value of old fruit trees in picnic area and homestead precinct

9.0	**Ensuring that uses and developments are compatible with significance**
9.1	Restrict new uses and developments in the place to those associated with passive enjoyment e.g. low-key day use amenities, walking tracks and interpretive signage
9.2	Site any new facilities so as to avoid or minimise impact on natural and cultural heritage values (including landscape) and to enable separation of more active motorised recreation from passive activities
9.3	Site new development only outside the loop of roads formed by Curries, Pabral and Five Fords Roads
9.4	Create new parking/day use area adjacent to the Eastern Terrace and Curries Road, with sealed toilet facilities
9.5	Create new loop walking tracks to key elements in the place and interpret values
9.6	Establish a linear walking track and associated interpretation along Condor Creek to Thompsons Corner via the Five Fords Road following closure to general traffic, with future extension to Uriarra
9.7	Name the linear track along Condor Creek as the ‘Goondawarra’ Walk if this is acceptable to Ngun(n)awal people, and engage Ngun(n)awal people in its development and interpretation
9.8	Examine options for connecting this track physically and conceptually to the Australian Alps walking track
9.9	Develop options for a lookout from the high point of the ridge to the east of the place, with two levels possible (one flat access and one steep). Consider naming this ‘Lane Poole Lookout’.
9.10	Develop options for a lookout from the south on the Brindabella Road, compatible with traffic safety. Consider naming this ‘Goondawarra Lookout’ if this is acceptable to Ngun(n)awal people.

BF	Policy and Works
10.0	**Interpreting values**
10.1	Provide equitable access to the natural and cultural significance of the place
10.2	Provide for the engagement and participation of people and groups for whom the place has special association, meaning or significance
10.3	Integrate the interpretation of natural and cultural values to emphasise their interaction in a cultural landscape
10.4	Encompass in interpretation all phases of occupation and use, and all key participants in the history of the place
10.5	Present interpretation in an accurate and accessible manner
10.6	Ensure participation and agreement of Ngun(n)awal people in development of interpretation related to Aboriginal use, occupation and significance
10.7	Relate the place to its broader setting and interpret layers of use of connections to Uriarra and the Canberra plain and to Brindabella and the high country
10.8	Interpret connections with the adjacent Australian Alps national parks

11.0	**Monitoring and review of plan, policies and practices**
11.1	Review this Plan not more than five years after its endorsement by ACT Heritage Council, or in advance of any major program for restoration or (re)development; the object being to ensure that the Plan remains relevant to conservation of natural and cultural heritage elements and values in the face of change, and takes into account any altered understanding of heritage significance
11.2	Review this Plan based on the Burra Charter and Australian Natural Heritage Charter, and taking into account any relevant legislation, planning frameworks, recovery plans, action plans, research, and conservation management practices
11.3	Establish and maintain a coordinated system to monitor and record management practices and associated impacts and changes in the place, and review policies and practices continuously in an adaptive management framework

IMPLEMENTATION SCHEDULE – BLUNDELLS FLAT

This is a summary format and reference is required to more complete descriptions in 'Policy & Works' table above. Timeframes indicate commencement; some will be continuing actions

* - indicates that works had commenced as at April 2008

BF	Within 1 year	BF	2 to 5 years
1.1 Seek endorsement of CMP		1.8 Seek place in Australian Alps national park	
1.2 Interim referral of works to Heritage Council		3.4 Manage endangered eucalypt seed orchard	
1.3 Nominate to Heritage Register		3.11 Consider needs for vista cutting	
1.4 Consult with Ngun(n)awal people		5.3 Survey potential Aboriginal heritage	
1.5, 1.6 Establish liaison between all agencies		5.4 Train land managers for Aboriginal heritage	
1.7 Designate Special Purpose Reserve		7.13 Consider 'soft' engineering in Musk Creek	
1.9 Foster structures for community participation		8.1 Undertake flora and fauna inventory	
1.10 Promote values in Canberra Centenary		8.2 Investigate *Engaeus cymus*	
1.12 Secure funding base		8.3 Investigate Northern Corroboree Frog	
3.2 Fell fire-killed trees in Wetland *		8.5 Investigate environmental history record	
3.3 Monitor regeneration to retain ecotones		8.7 Investigate *E.camphora* reintroduction	
7.16 Monitor vegetation & hydrology		8.8 Investigate value of *E.parvula* seed	
3.6 Foster conifer regeneration in arboretum		4.12, 9.1-9.5 Develop new picnic area & tracks	
3.7 Fell poplars, control suckers outside fence *		9.6, 9.7, 9.8 Establish linear (Goondawarra) track	
3.8 Remove pine wildings all areas *		9.9 Consider lookout from Brindabella Road	
3.8, 7.14 Program supplementary native planting		9.10 Consider lookout from eastern ridge	
3.9, 3.10 Develop plan for reduced fuel zones		11.1, 11.2 Review CMP	
4.1-4.11 Implement revised road access *			
6.5 Inventory moveable cultural heritage			
7.4 Control woody weeds in wetland, meadows *			
7.5 Fell trees in Wetland *			
7.6, 7.7, 7.9, 7.10, 7.12 Install 'soft engineering' in Wetland, Condor Ck, Musk Creek, Eastern Meadow, Western Meadow			
7.8 Control sediment from former picnic area *			
7.11 Restore hydrology from Comp.413 *			
7.15 Control sediment from roads left open *			
8.4 Develop water quality, habitat monitoring			
8.6 Document temperate grassland types			
8.9 Investigate value of fruit tree varieties			
11.3 Establish adaptive management framework			

SHANNONS FLAT

Vision for Shannons Flat

Shannons Flat is recognised and valued as the only ACT location for *Eucalyptus camphora* and for the contribution of its wetland systems to enhancing water quality in the Lower Cotter catchment.

The Flat is part of a Special Purpose Reserve which extends from the Condor Creek bridge at Thompsons Corner to abut Namadgi National Park on the north-west extremities of the ACT.

A lookout accessed by a short diversion from the Brindabella Road provides views over the Flat in a small confined valley below the timbered backdrop of Namadgi National Park, falling to wet gullies on Condor Creek.

Walkers access the place by service roads from the lookout or via the walking track extending from Uriarra through Five Fords (Thompsons Corner) to Blundells Flat.

Short loop walks and on-site interpretation relate to the natural heritage of the place, including wetland and stream ecology in Wombat Creek, and *Eucalyptus camphora*, as well as settlement of the place by the Shannon family for a short time in the early 20th century.

Since the January 2003 wildfires and removal of debris from former pine plantations, *E. camphora* has become re-established over much of the valley floor to form an extensive woodland of a type now uncommon in the region.

The place is visited by students from educational institutions in the region, and by a range of individuals and groups, some of whom assist with on-going research and monitoring of water quality and biodiversity.

Overall policies for Shannons Flat

Management of Shannons Flat is to:

- maximise benefits to water quality and biodiversity conservation from protection of all wetland systems, riparian zones, and habitats or potential habitats for threatened species and communities.
- restore the place and its curtilage to a condition such that it would be suitable for inclusion within Namadgi National Park (even if that does not occur for other reasons)
- allow passive enjoyment of the environment, and the presentation and interpretation of natural and cultural heritage.

Conservation philosophy for Shannons Flat

The primary conservation philosophy for management and use of Shannons Flat is to ensure that the population of *Eucalyptus camphora* is recognised, valued and protected in decision-making.

Conservation management and presentation of the area should be based on:

- recognising that the values of the area have been obscured due to past land use and management, and ensuring that maximum advantage is gained from the opportunities afforded by changed policy and management for the Lower Cotter catchment since the January 2003 wildfires
- understanding of functional interactions between the place and its surroundings, including Namadgi National Park, and the Condor Creek corridor and associated historic routes to Uriarra and the Canberra Plain
- increasing community awareness of the values of the area through participation, by maximising engagement of individuals and groups in protection and restoration works, in monitoring and research, and in interpretation and education activities.

POLICIES AND WORKS – SHANNONS FLAT

SF	Policy and Works
1.0	**Coordinating management structures and practices to promote policies**
1.1	Seek endorsement of this Conservation Management Plan from the ACT Heritage Council to enable continuing management in accordance with the provision of this Plan without the need to refer all works and development proposals to the Council
1.2	Pending endorsement of this Plan, refer all works and development proposals to the ACT Heritage Council for comment
1.3	Nominate the Shannons Flat place to the ACT Heritage Register based on the assessment of heritage significance in this Plan
1.4	Consult with representatives of the Ngun(n)awal people in implementing provisions of this Plan, through the Heritage Unit in the first instance
1.5	Ensure liaison between all officers responsible for management of land, catchment, biodiversity and cultural heritage in implementing provisions of this Plan
1.6	Ensure liaison with managers of Namadgi National Park (ACT) in implementing provisions of this Plan
1.7	Designate all parts of the Condor Creek catchment upstream from the Condor bridge (Thompsons Corner) as a Special Purpose Reserve in the Territory Plan
1.8	Pursue recognition of the place and the rest of the Special Purpose Reserve as part of the Australian Alps national parks system (Note: this can occur regardless of whether the place is within a national park)
1.9	Foster development and effective coordination of community-based structures to encourage active participation in planning, restoration, maintenance, interpretation, and monitoring of the place
1.10	Recognise that fostering increased community awareness of the values of the place is a means to increase security and protection of the place
1.11	Secure adequate, consistent and medium- to long-term funding to ensure that restoration and stabilisation works can be completed, and that interpretation, education and community engagement can be sustained

2.0	**Monitoring and review of plan, policies and practices**
2.1	Review this Plan not more than five years after its endorsement by ACT Heritage Council, or in advance of any major program for restoration or (re)development; the object being to ensure that the Plan remains relevant to conservation of natural and cultural heritage elements and values in the face of change, and takes into account any altered understanding of heritage significance
2.2	Review this Plan based on the Burra Charter and Australian Natural Heritage Charter, and taking into account any relevant legislation, planning frameworks, recovery plans, action plans, research, and conservation management practices
2.3	Establish and maintain a coordinated system to monitor and record management practices and associated impacts and changes in the place, and review policies and practices continuously in an adaptive management framework

3.0	**Reinforcing significant aspects of the setting, character and atmosphere**
3.1	Manage the place with due recognition that its natural and cultural heritage values (as set out in the statement of significance) are interdependent within a cultural landscape which includes its curtilage and setting
3.2	Undertake low key (re)development to facilitate walker access to, and understanding of, the place while ensuring protection of all values

SF	Policy and Works
4.0	**Managing landscapes**
4.1	Manage vegetation in the place to simulate the landscape of the pre-settlement phase, with regeneration of *Eucalyptus camphora* encouraged above all other species, and exotic species controlled
4.2	Manage vegetation in all parts of the curtilage to reinstate a native bushland backdrop to the place, by encouraging native regeneration and removing pine wildings, with supplementary planting of native species where required
4.3	Within the curtilage manage for a reduced fuel zone (wide tree spacings, low understorey, running broadly north east-south west) in those parts west of the place (Compartments 406, 407, 408)
4.4	Within the curtilage consider needs for selective vista cutting below the lookout point near the Brindabella Road (Compartment 404)

5.0	**Providing and managing access**
5.1	Restrict public vehicle access to the lookout point near the Brindabella Road [largely achieved as at April 2008]
5.2	Close but retain the access road from the Brindabella Road to Five Fords Road for 'service vehicles only'; re-label this as 'Shannons Flat Road' (for historical association), and use this for walker access from the lookout [largely achieved as at April 2008]
5.3	Close, stabilise and vegetate the surface of other former compartment boundary roads, including the road along the western side of Wombat Creek to Five Fords Road, to reduce runoff and improve water quality [largely achieved as at April 2008]

6.0	**Protecting Aboriginal cultural heritage**
6.1	Liaise with Ngun(n)awal people in relation to any major decision which has the potential to affect Aboriginal places or objects
6.2	Research potential Aboriginal heritage, with emphasis on lower reaches of Wombat Creek and junction with Condor Creek, with survey carried out by a suitably qualified archaeologist and in association with Ngun(n)awal people
6.3	Ensure adequate training for land managers so that they are able to recognise and record any Aboriginal places and objects which are encountered in works or routine activities
6.4	Ensure that any Aboriginal places and objects are notified as required by the Heritage Act, and entered on the ACT Heritage Register
6.5	Ensure that precise locations of Aboriginal places and objects are not publicised or labelled
6.6	Include advice in interpretive signs about Aboriginal occupation of the area, and the importance and protected status of Aboriginal places and objects

7.0	**Protecting and enhancing ecological function**
7.1	Establish as the primary focus for conservation management the protection and enhancement of habitat for *Eucalyptus camphora* and ecosystem service functions of wetland areas (Note: this supports primary objectives for water quality and biodiversity conservation)
7.2	Prohibit machinery and vehicle access to protect humic soils
7.3	Prohibit application of fire
7.4	Give priority to control of willows, blackberry and other woody weeds in wetland and riparian areas
7.5	Monitor vegetation and hydrology

8.0	**Addressing knowledge gaps**
8.1	Undertake a flora and fauna inventory, engaging community groups and individuals
8.2	Investigate the status and habitat requirements of *Eucalyptus camphora*

SF	Policy and Works
9.0	**Ensuring that uses and developments are compatible with significance**
9.1	Restrict new uses and developments in the place to those associated with passive enjoyment e.g. low-key walking tracks and interpretive signage
9.2	Create new loop walking tracks to key elements in the place and interpret values
9.3	Connect the place to a linear walking track and associated interpretation along Condor Creek to Thompsons Corner via the Five Fords Road following closure to general traffic, with future extension to Uriarra
9.4	Develop and interpret a lookout from the south accessible from the Brindabella Road, compatible with traffic safety. Consider naming this 'Shannons Flat Lookout'.

10.0	**Interpreting values**
10.1	Provide equitable access to the natural and cultural significance of the place
10.2	Provide for the engagement and participation of people and groups for whom the place has special association, meaning or significance
10.3	Integrate the interpretation of natural and cultural values to emphasise their interaction in a cultural landscape
10.4	Encompass in interpretation all phases of occupation and use, and all key participants in the history of the place
10.5	Present interpretation in an accurate and accessible manner
10.6	Ensure participation and agreement of Ngun(n)awal people in development of interpretation related to Aboriginal use, occupation and significance
10.7	Relate the place to its broader setting and interpret layers of use of connections to Uriarra and the Canberra plain and to Brindabella and the high country

IMPLEMENTATION SCHEDULE – SHANNONS FLAT

This is a summary format and reference is required to more complete descriptions in 'Policy & Works' table above

* - indicates that works had commenced as at April 2008

SF	1 year	SF	2 to 5 years
1.1 Seek endorsement of CMP		1.8 Seek place in Australian Alps national park	
1.2 Interim referral of works to Heritage Council		2.1, 2.2 Review CMP	
1.3 Nominate to Heritage Register		4.4 Consider needs for vista cutting	
1.4 Consult with Ngun(n)awal people		6.2 Survey potential Aboriginal heritage	
1.5, 1.6 Establish liaison between all agencies		6.3 Train land managers for Aboriginal heritage	
1.7 Designate Special Purpose Reserve		8.1 Undertake flora and fauna inventory	
1.9 Foster structures for community participation		9.2 Develop tracks	
1.11 Secure funding base		9.3 Link to linear track on Condor Creek	
2.3 Establish adaptive management framework		9.4 Consider lookout from near Brindabella Road	
3.2, 9.1 Low-key redevelopment (walker access)			
4.2 Remove pine wildings all areas			
4.2 Program supplementary native planting			
4.3 Develop plan for reduced fuel zone			
5.1-5.3 Implement revised road access *			
7.4 Control woody weeds in wetland, riparian			
7.5 Monitor vegetation and hydrology			

F INTERPRETATION AND EDUCATION

The object of this Part is to provide guidance to managers in support of conservation through interpretation of, and education about, in and for, Blundells Flat and Shannons Flat.

Guidance to managers includes:

- key communication issues
- identification of stakeholder/interest groups
- possible media and activities.

PRINCIPLES

Fostering increased community awareness of the values of a place is a means to increase security and protection of the place. People are more likely to value and care for a place if they have an attachment to or an association with it, or at least an understanding of its significance.

Equally important is awareness and understanding of management practices, and particularly reimposition of management control over access and use patterns.

The approach to and emphasis in interpretation and education needs to reflect differences between Blundells Flat and Shannons Flat in terms of complexity, access, history of association and nature of demand from stakeholders.

KEY COMMUNICATION ISSUES

Changed perceptions

Before the 2003 wildfires, Blundells Flat was extensively used by a wide range of individuals and groups over decades, drawn there by its landscape amenity and diversity of settings, and/or by its convenient location as a meeting place and jumping off point for activities in the mountains beyond.

Shannons Flat by contrast was not widely recognised as a place and was rarely visited as a destination, because it was almost totally obscured by pine plantations.

Following the 2003 wildfires, Blundells Flat lay in disarray, with all visitor settings and infrastructure settings burnt, and control of public access lost. A pattern of repeated vandalism, car dumping and rubbish dumping developed in response to lack of any sign of management. Vandalism abated to some extent as the area regenerated. Mild attempts to control vehicle access were readily negated and four-wheel-drive and trail bike users became dominant in the area, creating track circuits and jumps, denuding the picnic area, creating or worsening mud wallows on tracks, and mobilising sediment with impacts on wetland systems, streams and cultural heritage remains. Impacts also arise from mechanical noise levels, which often are not conducive to passive enjoyment of the environment. This was not compatible with protection of natural and cultural heritage elements.

Shannons Flat too had its share of car dumping, although it remains largely unrecognised and has been visited primarily by through traffic on roads and tracks to which accesss has since been controlled.

Creating new perceptions and use patterns

In Part E it is proposed to increase the intensity of visitor management at Blundells Flat and its curtilage to protect and interpret values and to ensure a progressive shift in the nature of use towards passive enjoyment.

At a lesser scale, Part E proposes that Shannons Flat receive low key development to facilitate walker access to, and understanding of, the place while ensuring protection of all values.

Although differing in degree, both of these strategies require a shift away from active or disturbing uses which are not related to the values and significance of the places. This in turn requires changed expectations and behaviour on the part of community stakeholders.

Part E proposes significant changes to control of public access, particularly restrictions on motorised access, and this will require clear communication and engagement of stakeholders.
[Some works have already been undertaken as at April 2008]

STAKEHOLDERS

For both Blundells Flat and Shannons Flat primary stakeholders include agencies managing land, water, biodiversity and heritage. This includes:

- the Department of Territory & Municipal Services (including Parks, Conservation & Lands as land managers, Wildlife Research & Monitoring, and Heritage Unit)
- EcoWise and ActewAGL as water supply managers.

Other key stakeholders include:

- ACT Heritage Council due to their statutory responsibilities for heritage places and objects.
- NSW Department of Environment & Climate Change (Parks Division) as managers of Brindabella National Park

INTEREST GROUPS

Target audiences and interest groups will have diverse expectations of interpretation and education resources. In broad terms, these need to address:

- natural and cultural heritage values and significance of each area; and
- management strategies and practices to protect those values.

The audiences that these stakeholders may need to reach include:

- scientists and researchers (e.g. biodiversity, environmental history)
- students of all ages (e.g. environment, natural or cultural resource management, local history)
- individuals and groups with active interest in natural and/or cultural heritage
- recreational users (e.g. picnicking, walking, mountain biking, four-wheel-driving, trail bike riding)
- operators and clients of nature-based and cultural tourism.

THEMES

It is proposed that interpretation and education:

- draw from elements of natural and cultural heritage identified in Biophysical Environment and Cultural Environment sections in Part B Understanding the Place
- reflect relative significance identified in Part C Assessing Heritage Significance
- draw from Australian and NSW State Historic Themes identified in Part C Assessing Heritage Significance.

For Blundells Flat, likely themes include:

- impact of the 2003 fires
- wetland systems and ecosystem services for water quality and associated catchment protection
- peatland and environmental history
- ecotones and dual habitat species
- uncommon and threatened species (Northern Corroboree Frog, land burrowing crayfish *Engaeus cymus* and Key's matchstick grasshopper *Keyacris scurra*)
- Aboriginal use
- early exploration and routes
- settlement by McDonald and Blundell (landscape change)
- forestry (Australian Forestry School camp and forestry camp)
- research arboreta (conifers, poplars, endangered eucalypt seed orchard
- fire protection (history, fire towers)

For Shannons Flat likely themes include:

- uncommon and threatened species (*Eucalyptus camphora*)
- wetland systems and ecosystem services for water quality
- settlement by Shannon (and Perrott).

MESSAGES

In both places, key messages include:

- primacy of protecting water quality (catchment context) and biodiversity over other values and objectives
- areas being reclaimed and restored in the aftermath of 2003 fires, and requiring careful protection and sensitive management.

EXTERNAL LINKAGES

In developing these themes, key linkages and relationships external to the place need to be acknowledged.

For Blundells Flat these include:

- catchment context (Lower Cotter water supply) and protection measures
- relationship to regional wetlands and peatlands and their protection
- distribution and range limits of Northern Corroboree Frog, land burrowing crayfish *Engaeus cymus*
- regional patterns of Aboriginal use and association
- regional routes, particularly Canberra plain to high country via Condor(e) and Brindabella
- arboreta as a 'series' of living experiments
- relationship to Australian Alps national parks
- extent of the 2003 fires (NSW, ACT, Vic)

For Shannons Flat these include:

- distribution and range limits of *Eucalyptus camphora*
- catchment context (Lower Cotter water supply) and protection measures
- relationship to Australian Alps national parks

MEDIA AND ACTIVITIES

Potential approaches to interpretation and education at Blundells Flat include use of:

- branding as a recovered asset or treasure
- signage at points which mark key elements or themes
- self-guided walks on loop trails (with guide brochure)
- guided walks from time to time (guided by agency staff or community volunteers)
- Web site (hosted/maintained by agency or community volunteers)
- school activities (visits, holiday programs, teachers kit)
- portable display
- public talks (agency or community volunteers)
- media releases (some linked to key events e.g. World Environment Day, World Wetlands Day)
- magazine articles (public, interest group and professional publications)
- conference papers
- communication through affiliations and networks (interest groups and professional bodies)
- community engagement events (planting, restoration, maintenance)

Potential approaches to interpretation and education at Shannons Flat include use of:

- branding as a recovered asset or treasure
- signs at points which mark key elements or themes
- guided walks from time to time (guided by agency staff or community volunteers)
- communication through affiliations and networks (interest groups and professional bodies)
- community engagement events (planting, restoration, maintenance)

FACILITIES AND DEVELOPMENTS

Part E proposes a number of developments and facilities which could support associated interpretive signs.

At Blundells Flat suggestions for these include:

- new parking/picnic area adjacent to the Eastern Terrace with toilet facilities – a shelter here could provide orientation to the place, with a map showing loop walks, and the broadest level of interpretation about layers of history
- loop walking tracks – one likely route is new picnic area to Blundells farmhouse site (sign), forestry camp site/ eucalypt seed orchard (signs), Eastern Meadow (sign), poplar arboretum (sign), Condor Creek (sign), and conifer arboretum (signs), with return via concrete ford and Curries Road or possible boardwalk through Wetland; tracks to be developed following guidelines in Galt (1995)
- low-key facilities in conifer arboretum – possibly a picnic table in shadiest part, or a shelter with interpretive signage (including 'arboreta series' sign as proposed by Keller 2004)
- lookout from Brindabella Road ('Goondawarra Lookout') – a sign here could identify key landmarks on the horizon and provide context for the place (including catchment)
- lookout from the eastern ridge ('Lane Poole Lookout') – a sign here could identify key locations in the valley floor and provide some information on the Australian Forestry School, forestry research and C E Lane Poole
- linear walking track ('Goondawarra Track') along Condor Creek – signs at picnic area near Thompsons Corner and new picnic area at Blundell Flat could interpret historic routes

At Shannons Flat suggestions for these include:

- lookout accessed from Brindabella Road ('Shannons Flat Lookout') – a sign here could provide overview information (Shannon settlement; *Eucalyptus camphora*) and simple orientation to catchment
- low-key development for walker access – a sign near the crossing of Wombat Creek by the linear track ('Goondawarra Track') along Condor Creek could interpret *Eucalyptus camphora*

G MONITORING AND REVIEW

This Part identifies monitoring and review proposed elsewhere in this Plan and possible indicators.

PROCESSES AND MECHANISMS

Monitoring and review processes and mechanisms:

- provide a continuing record of environmental change for interpretation and education purposes
- provide information on progress and effectiveness of works and practices; and
- enable an adaptive management approach, responding to observed changes.

Each process includes (after Cairnes 2003):

- defining the purpose of monitoring
- deciding what to measure
- developing indicators
- preparing a plan for monitoring frequency, locations, analysis and archiving
- conducting a pilot or trial and refining approach if necessary
- collecting data
- evaluating results (with expert advice as required)
- modifying policies or practices if required.

Part E proposes a number of monitoring and review practices.

At Blundells Flat these practices include:

- development of structures to encourage community participation in monitoring
- monitoring of native species regeneration patterns, enabling intervention to maintain and maximise effective ecotones between forest and open areas
- monitoring of vegetation and hydrology in the wetland and meadow areas, enabling intervention if hydrostatic head becomes excessive or any other undesirable hydrological impacts arise in the Wetland soak
- development of indicators of water quality and in-stream habitat quality, with community engagement in monitoring
- monitoring and recording of management practices and associated impacts and changes, enabling continuing review of policies and practices.

At Shannons Flat these include:

- development of structures to encourage community participation in monitoring
- monitoring of vegetation and hydrology
- monitoring and recording of management practices and associated impacts and changes, enabling continuing review of policies and practices.

Further monitoring proposals may arise from investigations and research to address knowledge gaps e.g. status of uncommon or threatened species and communities.

INDICATORS

Indicators need to be (after Cairnes 2003):

- directly related to objectives of the Conservation Policy
- capable of demonstrating trends over time and cumulative impacts
- sufficiently sensitive to provide early indication of potential threats
- statistically robust and scientifically credible
- designed so that results are not likely to be ambiguous or misinterpreted
- designed so that data are relatively easy and cost effective to collect.

Sample indicators include:

Factor	Sample Indicator
Progress against the Plan	Extent to which works/practices are carried out within the proposed timeframe
Change in community perceptions and engagement	Number of community groups and individuals active in restoration, maintenance, monitoring and interpretation activities
	Levels of participation in community events
	Number of enquiries received about the place, requests for talks and information resources etc
	Level of interest in stories about the place from local media
	Nature and level of opposition to/support for proposals affecting the place (including entry to the Heritage Register)
	Levels of littering or vandalism
Change in the place	Water quality indicators (Waterwatch) in wetlands and streams
	Population of uncommon or threatened species
	Degree of incision of wetland/stream course in response to protective measures
	Ratio of regenerating forest areas to open areas and length of ecotone boundary
	Visual change (photographic monitoring)

At Blundells Flat, as at April 2008:

- photographic monitoring of visual change with fixed points has been commenced and continued by Greening Australia
- preliminary sampling surveys of plants and birds have been undertaken by Friends of Grasslands and Canberra Ornithologists Group
- initial Waterwatch sampling has been undertaken above, within and below the Wetlands Soak.

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Mr J [James] Blundell junior 320 acres Parish of Tidbinbilla [NAA; A358, 93 – 879344]

Mr J [John] Blundell senior 560 acres Parish of Tidbinbilla [NAA; A358, 96 – 879523]

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File – Poplar Arboretum (E.M.289 – later FRI 2112) [CSIRO F&FP]

File – Schreiner Poplars 1948 Introductions; Planting Plans (FRI 2102) [CSIRO F&FP]

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National Archives of Australia

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Australian Forestry School, Canberra - Federal Capital Territory - Stem analysis at Corree (1927) [NAA; A3087, 11 – 7827614]

Australian Forestry School, Canberra, Federal Capital Territory - Mt Corree under snow (1927) [NAA; A3087, 12 – 7827615]

Australian Forestry School Camp – Condore Creek – Federal Capital Territory – Off duty - September 1927 [NAA; A3087, 14 – 7827617]

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Australian Forestry School Camp – Condore Creek – Federal Capital Territory (1927) [NAA; A3087, 16 – 7827619]

Australian Forestry School, Canberra – Forest Survey Camp - Condore Creek – Federal Capital Territory (1927) [NAA; A3087, 17 – 7827620]

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Forestry – Logging timber in a native eucalypt forest in the Brindabella Ranges near Canberra; photographer W Pedersen (1951) [NAA; A1200, L13561 – 7534047; L13563 – 11188688]

Forestry - Logging timber in a native eucalypt forest in the Brindabella Ranges, south-west of Canberra; photographer, W Pedersen (1951) [NAA; A1200, L13558 – 11188686; L13559 - 11188687]

Forestry – Hauling the logs to the ramp for loading onto lorries, in the Brindabella Ranges near Canberra, ACT; photographer W Pedersen (1951) [NAA; L13562 – 11188642]

Forestry officers, Forestry Camp Mount Coree (Oct 1927) [NAA; A3560, 3652 – 3086122]

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Tents and huts, Forestry Camp Mount Coree (Oct 1927) [NAA; A3560, 3650 – 3086123]

Tents and huts, Forestry Camp Mount Coree (Oct 1927) [NAA; A3560, 3651 – 3086124]

Three visitors to the Forestry Camp Mount Coree (Oct 1927) [NAA; A3560, 3655 – 3086127]

Unidentified landscape, Forestry Camp Mount Coree (Oct 1927) [NAA; A3560, 3653 – 3086125]

Unidentified landscape, Forestry Camp Mount Coree (Oct 1927) [NAA; A3560, 3656 – 3086128]

Canberra & District Historical Society

Alexander McKenzie CDHS 14058 loc 355

Blundells Flat - three views (from Whelan MS 1931)

Devils Peak the head of the Cotter 1926 (Pulver 1981)

Howard Norman Blundell CDHS 12215

'John Blundell, Forest Lodge, Tumorrama, 7 March 1927' CDHS Blundell family folder

John Blundell CDHS 12219

Packhorses (Blundells Flat) (Pulver 1981)

Phil Hardy house - two views (from Whelan MS 1931)

Phoebe Blundell CDHS 12218

Richard Blundell's Wool Wagon CDHS 14396 loc 693
Sarah McKenzie CDHS 14059 loc 356
Surveyor A P Pulver at Coree trig 1926 (Pulver MS 1981)
Surveyor camp below Coree (Blundells Flat) 1926 (Pulver 1981)
Snow at 4000 feet (Pulver 1981)

Roy Bush

'A G H Lovell taken at Sandy Flat'
'Blundell cleaning the fish'
Blundell homestead buildings – two views
Blundell homestead, family group and sulky, with hills in background
Blundell homestead – view to surrounding hills
'Camp at Goodradigbee'
John Blundell with bullock team
John Blundell drinking from stream
'The camp'
'The pack horses'
'Mr Gale John Blundell' and two others at fishing camp 1910
''John Gale & John Blundell rainbow trout caught near Brindabella 1910'
John Blundell and tree ferns (postcard from R H Cambage on verso) 1911
'John Blundell 1920 Couragago' [may be misdated – appears to be concurrent with CDHS photo 1927]

National Library of Australia

'W P Bluett at Koorabri' nla.pic-an24895736
Convection over McIntyre Hut fire at 1342 hrs 17 January 2003 (Jeff Cutting) nla.pic-vn3510189
Convection column of McIntyres Hut fire, 8 January 2003 (Jeff Cutting) nla.pic-vn3511911

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First mixed walkers at Cotter April 1932 from Allen et al 1977
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Martha Shannon nee Southwell from Gillespie 1988
Northern Corroboree Frog Environment ACT
Samuel Adolphus Shannon from Gillespie 1988
Stewart Mowle from Wilson 1968
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Maps (by source and alphabetical)

National Archives of Australia

Plans of holdings, Parish Tidbinbilla County Cowley:
Estate J McDonald por 1 (1913) [NAA; A358/2, 92 - 879333]
J Blundell snr pors 2, 3, 5 (1913) [NAA; A358/2, 96 - 879523]
J Blundell jnr pors 11,12, 14, 15 (1913) [NAA; A358/2, 93 - 879344]
S Shannon pors 16, 17 (1913) [NAA; A358/2, 97 - 879541]

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Cotter recreation reserve (1933). MAP RM 3076 [NLA]

County Cowley NSW (1871) [as County of Cowley and Co. Buccleuch]; 8 June 1881; 18 April 1923 [NLA]

Map of the counties of Harden, King, Argyle, Buccleugh, Murray, St. Vincent and Cowley showing county and parish boundaries, railways and main roads. Relief shown by hachures.
Plate 11 from Vol. 1 (NSW): *The new atlas of Australia*. [*op.cit.* as McLean (ed) 1886]. J. Sands, Sydney [NLA]

Feature map of the Federal Capital Territory of the Commonwealth of Australia and environs (1929). Commonwealth of Australia, Federal Capital Commission; c. 1:126,720. H.J. Green, Govt. Printer, Melbourne. MAP G8980 1929 [NLA]

Federal Territory Features Map (1915?) - Sheet 9 – 20 chains to the inch [1:15,840] MAP G8981.G46 1915? [NLA]

Forest block map – MAP G8981.K1 Sheets 1 & 4 [10 chains to 1 inch] 1956 Forestry & Timber Bureau [NLA]

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Parish Urayarra, County Cowley NSW – 2 July 1912; 10 November 1965 [NLA]

Parish Tidbinbilla, County Cowley NSW – 9 February 1912 [NLA]

Plan of north-west boundary of the Commonwealth Territory from Coree Trig. Stn to One Tree Trig. Stn F.C.18 – Map G8981.F2 1910-11 (Percy L Sheaffe, surveyor) [NLA]

Plan of part Cotter catchment area. Parish of Urayarra. Co. Cowley NSW – MAP G8981.C315 1927 (Astley P Pulver, surveyor) [NLA]

Topographical map of the Federal Territory, Australia (1910). Compiled, drawn and printed at the Department of Lands, Sydney, NSW. [Also issued for the Dept. of Home Affairs, in 1911, for Federal Capital Design Competition competitors] MAP G8980 1910 [NLA]

Western Territorial boundary MAP G8981.F2.1914 [NLA]

LPI NSW

Parish Tidbinbilla, County Cowley NSW – 19 September 1904 [Lands NSW]

Pastoral map NSW (1885) – Urayarra Run No.241 [Lands NSW]

Pastoral map NSW (1885) – Middle Cotter North Run No.50 [Lands NSW]

Pastoral map NSW (1885) – Middle Cotter South Run No.45 [Lands NSW]

ACT Forests

Forests block map – Blundells 10 [1:10,000] 1999 [ACT Forests]

Forests block map – Camages 15 & Wombat 16 [1:10,000] 1999 [ACT Forests]

Forests map – Uriarra Map 51 – Blundells Camages [1:10,000] 2005 [ACT Forests]

Forests map – Uriarra Map 52 – Shannons Condor [1:10,000] 2005 [ACT Forests]

ACT Planning & Land Authority

NSW Tenures. Federal Capital Territory. Leases, Licences and Road Permits [ACTPLA]

Portion plans, Parish Tidbinbilla, County Cowley NSW – pors. 2 (1871), 3 (1883), 5 (1886), 11 (1893), 12 (1894), 14 (1899), 15 (1899), 16 (1900), 17 (1900) [ACTPLA]

Canberra & District Historical Society

Tourist map Federal Capital Territory (1934)

Tourist map Federal Capital Territory (1959)

Commercial

Map of the Colony of New South Wales [*shewing the mountain ranges, roads, county divisions &c. In three sheets*] by Major T.L. Mitchell, Surveyor General. Engraved by John Carmichael. Orig. 1834 Sydney & republished in London [Facsimile CMA NSW Bathurst 1977]

Topographic - Brindabella 8627 [1:100,000] 1974

Topographic - ACT Region [1:100,000] 2004

Topographic - Cotter Dam 8627-II-N [1:25,000] 1982, 2003

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FOREST COMPARTMENTS

Blundells Flat

410	BF Eastn&Sthn slopes	Manage native regeneration; control weeds; control erosion
411	BF Eastn&Sthn slopes	Manage native regeneration; control weeds; control erosion
412	BF Eastn&Sthn slopes	Manage native regeneration; control weeds; control erosion
413A	BF Eastn&Sthn slopes	Manage native regeneration; control weeds; actively manage 50 m buffer at lower end above Eastern Terrace
413B	BF Access corridor	Manage native regeneration; control weeds; control erosion
414	BF pt Access Corridor; pt Eastn&Sthn Slopes	Manage native regeneration; control weeds; actively manage 50 m buffer at lower end above Eastern Terrace and Eastern Meadow; close road at lower end and consider wetland remediation
415A	BF Eastern Foothills	Buffer to Eastern meadow and Riparian Zone - no machinery access; native regeneration; control weeds;
415B	BF Eastern Meadow	No machinery access; hand fell dead poplars and other exotic trees; mark arboretum boundaries and control suckers outside this line; active management to protect ponds on upslope side
415C	BF Eastern Terrace	Eucalypt seed orchard; no vehicular traffic; no machinery access; control weeds
415D	BF pt Eastern Terrace; pt Eastern Meadow	No vehicular traffic; no machinery access; leave dead pines along road to control access; hand fell other dead exotic trees; control all poplars outside arboretum area; remove pine wildings; control weeds; slow and spread water; control erosion, particularly in soak area; native regeneration
417	BF Northern Foothills	Manage native regeneration; control weeds
418	BF Northern Foothills	Manage native regeneration; control weeds; actively manage 50 m buffer at lower end above Western Meadow
419	BF Northern Foothills	Manage native regeneration; control weeds
420A	BF Blundells Arboretum	Remove all standing exotics; protect native regeneration with riparian emphasis; remove any poplar or Robinia suckers; mark corners and part edges of arboretum area; interpret arboretum
420B	BF Western Slopes	Actively manage 50 m native buffer at lower end above Riparian Zone; control weeds
420C	BF Western Slopes	Actively manage 50 m native buffer at lower end above Riparian Zone; control weeds
421	BF Western Slopes	Remove all standing exotics; protect native regeneration; remove any poplar or Robinia suckers; mark corners and part edges of arboretum area; interpret arboretum
422	BF Western Slopes	Remove all standing exotics; protect regeneration except E.globulus and any poplar or Robinia suckers; mark corners and part edges of arboretum; interpret arboretum
423	BF Western Slopes	[mapped differently in 2005; mapped 1999 as A, B, C below]
423A	BF Western Slopes	Manage native regeneration; control weeds
423B	BF Western Slopes	Manage native regeneration; control weeds
423C	BF Western Slopes	Keep clear of larger trees to retain ‘collar’ around arboretum area; control weeds
424	BF Western Slopes	Manage native regeneration; control weeds
425	BF Western Slopes	Manage native regeneration; control weeds; actively manage 50m buffer above Fastigata Creek
426	BF Western Slopes	Manage native regeneration; control weeds; actively manage area between Curries Road and Fastigata Creek
427A	BF Western Slopes	Manage native regeneration; control weeds
427B	BF Western Slopes	Manage native regeneration; control weeds
428	BF Eastn&Sthn slopes	Manage native regeneration; control weeds; actively manage 50m buffer to Condor Creek
429	BF Eastn&Sthn slopes	Manage native regeneration; control weeds
430	BF Eastn&Sthn slopes	Manage native regeneration; control weeds
431	BF Eastn&Sthn slopes	Manage native regeneration; control weeds
432	BF Eastn&Sthn slopes	Manage native regeneration; control weeds

Shannons Flat

401	SF Condor Corridor	Manage native regeneration; control weeds; control erosion
402	SF Condor Corridor	[mapped differently on 2005 mapping] East of Five Creeks Road - riparian protection; native regeneration; control erosion; control weeds; walking track West of track – native regeneration; control weeds
403	SF Condor Corridor	[deleted from 2005 mapping] Riparian protection; native regeneration; control erosion; control weeds; interpret *E.camphora* and schoolhouse site on walking track
404	SF Wetland and Wombat Creek	[exclusion areas mapped 1999; not 2005] In area below approx. 720 m contour: Wetland protection - no vehicular traffic; no machinery access; spread water in upper reaches; native regeneration; control weeds; Above 720m – manage native regeneration; supplementary planting (community); control weeds
405	SF Wombat Creek	Manage native regeneration; control weeds; control erosion
406	SF Wombat Creek	Manage native regeneration; control weeds; control erosion
407	SF Wombat Creek	Manage native regeneration; control weeds; control erosion
408	SF Condor Corridor	Manage native regeneration; control weeds; control erosion
409	SF Condor Corridor	No machinery access; manage native regeneration; control weeds