

## **DEVELOPMENT APPLICATIONS FOR JORDAN SPRINGS VILLAGES 2 & 3**

**Teresa James August 14, 2011**

### **Introduction**

This statement has been prepared in response to the council report of 15 August, 2011 in relation to the above development applications. I am a botanist and ecologist with over 30 years of experience within government departments (Sydney Royal Botanic Gardens and National Parks & Wildlife Service) and as a consultant with particular focus on western Sydney (see attached CV). I have undertaken extensive survey and documentation within CPW and provided extensive peer review, predominantly for state and local government.

I have previously reviewed the Jordan Springs Stage 2A development proposal (James, May 2011) as well as the Species Impact Statement (SIS) for the Western Sydney Conservation Alliance. The Stage 2A review has recently been forwarded to Council by the Environmental Defenders Office (12 August, 2011). Issues raised in that report are relevant to all the DA's under consideration. I have identified a range of inadequacies and concerns with the flora and fauna assessment reports and do not believe that these have been satisfactorily addressed by council in their consideration of the development applications. I am also concerned by the independent peer review conducted by Trevor Hawkeswood who is primarily a fauna specialist and is not regarded as an expert in the Cumberland Plain Woodland CEC. The potential loss of 59 ha of a critically endangered community is a serious issue and accordingly review by a specialist in this community is warranted.

It is my opinion that there is likely to be a significant impact on a local occurrence of *critically endangered* CPW. My opinion is based on the following key issues:

1. Inadequacy of proposed offset & inconsistency with offset guidelines
2. Additional impacts on the Regional Park
3. Importance of habitat to be removed or modified

The SIS does not satisfactorily meet the DG's requirements with many of the issues identified in the WSCA submission (7 July, 2011) still unsatisfactorily addressed. Furthermore, the peer review undertaken by Mr Hawkeswood fails to identify and address many of the key issues.

## **Inadequate offsetting of a significant impact**

The SIS itself concludes that “the proposed development of the subject site will remove a large area of habitat for CPW”. This undoubtedly represents a significant impact on a critically endangered community. The only reason the SIS concludes otherwise is because CPW on the subject site is deemed to be highly degraded and “the large and viable representatives present in the Regional Park will be protected and enhanced”.

This assumption is contested as summarized below with more detail provided in my Stage 2A report (James, May 2011).

- Not all of the Regional Park contains CPW; approx. 450 ha out of 900 ha or 50% is CPW (table 5.2 of SIS). The council report suggests, however, that the entire 900 ha of vegetation is an offset yet there has been no case presented to support offsetting CPW with other communities.
- Over 50% of the CPW within the Regional Park has been subject to clearing, fragmentation and grazing. The area of good condition CPW is likely to be overestimated with areas of exotic dominated derived native grassland within the Regional Park included in the area mapped as CPW. In contrast, these areas have been mapped separately at a finer scale within the subject land.
- There is insufficient evidence to conclude that CPW within the north-western part of the Regional Park is of significantly greater conservation value than CPW in parts of the subject site. Aerial photographs indicate that they have a similar history with the key difference being that land within the Regional Park has been able to regenerate in recent years in contrast to grassland areas within the subject site that are mown. An analysis of plot data from the SIS indicates that CPW within much of the subject site has a similar level of native species richness (James, May 2011). The regeneration potential of CPW in the subject site has not been considered despite the regeneration that has occurred within adjoining areas in recent years.
- Regional Parks are multi-use reserves that cannot provide a level of conservation commensurate with a critically endangered community (CEC). The management objectives and conservation outcomes are limited by legislation (National Parks and Wildlife Act 1974 No 80), the St Mary’s Development Agreement (2002) and SREP 30 St Mary’s. To achieve a primary conservation focus CPW on priority conservation land should be protected within a nature reserve or national park. CPW within the Regional Park is fragmented by roads, degraded areas and development (existing and proposed) and only around 40% will be managed primarily for conservation within a Primary Habitat Focus zone. Remaining areas will be affected by development and operation as visitor or recreational precincts despite the entire park being identified as “priority conservation land” in the Cumberland Plain Recovery Plan (2011). These management issues have not been considered in any detail in the council report, the SIS or in the peer review.

## Inconsistency with offsetting principles

The Office of Environment and Heritage has produced guidelines for the use of biodiversity offsets (<http://environment.nsw.gov.au/biocertification/offsets>). The proposed offset for the DA's under consideration is inconsistent with the following principles:

### *1. Impacts must be avoided first*

There is no proposal to protect any area of CPW on the subject site for conservation purposes not even along the boundary with the Regional Park.

### *5. Offsets must be underpinned by sound ecological principles*

The long-term viability & functionality of CPW within parts of the Regional Park is threatened by the multi-use objectives of the park. A Regional Park is not considered to be a formal conservation reserve. The degree of fragmentation and development within the Regional Park will limit restoration of CPW to a mature state and development of "core" areas away from ongoing impacts.

### *6. Offsets should aim to result in net improvement in biodiversity over time*

Cumulative impacts of proposed development within the Western Precinct are significant with 189 ha of CPW to be cleared (SIS 7.2) as well as additional areas across the SMP generally. This is significant loss of a critically endangered community within one of the largest remnants of CPW, much of which is identified as priority conservation land. Biodiversity offsetting within the Regional Park will not result in net improvement of biodiversity within CPW.

### *9. Offsets must be quantifiable – the impacts and benefits must be reliably estimated*

The SIS does not include sufficient detail on individual species of CPW, including some threatened species (e.g. *Pimelea spicata*) and whether they are adequately conserved within the Regional Park. No comprehensive listing of native species within the park was available at the time of the SIS. The condition of CPW within the Regional Park relative to the subject site has not been adequately or reliably determined. Management actions and level of security within the Regional Park has not been critically assessed.

### *12. Offsets must be supplementary*

Areas already managed by the government such as reserves and public open space cannot be used as offsets. The Regional Park is an existing public area that is invalid as an offset for a current development application.

Offsets must be beyond existing requirements and not already funded under another scheme. The partly government funded Regional Park was determined by national criteria and listed in 1999 prior to any development planning or proposals. Where the EPBC Act protects *matters of national significance*, the state legislation has a more inclusive charter and accordingly smaller and more modified remnants are protected. Protection of additional areas outside of the Regional Park is consistent with state

conservation objectives. Also relevant is the recent upgrading of CPW to a critically endangered community (at both national & state levels) with higher conservation outcomes warranted.

## **Impacts on the Regional Park**

The proposal itself will adversely impact on adjoining areas of the Regional Park. The boundary is presently buffered by scattered trees and derived grassland in relatively good condition. The “new” environment will largely comprise roads, pathways and houses. There will be significant changes in local environmental conditions that will cause “edge effects” over a distance of at least 20-40 m. Further impacts will occur when works are undertaken to connect the perimeter road to roads and pathways within the Regional Park resulting in increased edge effects in the vicinity of these access points and along the road/cycle-ways. The mitigation measures identified in the SIS are inadequate; no functional buffer zone is provided. This adjoining land within the Regional Park has been identified as Priority Conservation Land (PCL) in the Cumberland Plain Recovery Plan (CPRP 2011).

## **Importance of habitat to be impacted**

Recovery of CPW depends on the protection and restoration of modified and degraded patches of the community with most remnants now in this condition (CPRP 2011).

CPW habitat to be removed, modified or fragmented is important to the long-term survival of CPW in the locality for the following reasons:

- It is representative of a critically endangered community (CEC) that faces an extremely high risk of extinction. Only 8% of remaining CPW is on NPWS estate.
- The subject site is part of one of the largest extant remnants of CPW on the Cumberland Plain and contributes to the overall size of the remnant and associated flora and fauna values, increases east-west connectivity and support and buffering for areas within the Regional Park.
- A range of CPW components are present within the subject site including mature trees, regenerating woodland and grassland containing good overall native species richness.

## **Peer review**

The peer review by Trevor Hawkeswood fails to identify or critically assess the key inadequacies of the SIS and key issues including the following:

- Failure to identify a local occurrence of CPW consistent with DECC guidelines
- Impacts of the proposal on the Regional Park are not considered in any detail
- Underestimation of CPW condition on the subject site relative to the Regional Park
- Underestimation of the importance of habitat to be removed

- Lack of assessment of cumulative impacts on CPW within the Western Precinct and across the SMP
- Lack of consideration of offsetting principles
- Adequacy of offset proposal not critically assessed

General assumptions are made about condition and species richness without reference to quantitative data. A brief field inspection in the middle of winter is not sufficient to accurately determine these values. The following statements written by Mr Hawkeswood and included in the council report lack scientific rigor and/or are misleading:

- CPW to be cleared “is mostly composed of introduced grasslands with weedy grasses and other weeds” – this is simplistic and misleading with close to 50% of the area to be cleared mapped as regenerating CPW and native dominated grassland.
- CPW to be removed is highly degraded based on the observation that “there appears to be no extensive forest/woodlands. Therefore, the woodland which will be removed is highly degraded and depauperate in plant and animal species”. This is a very simplistic assessment and is not supported by quantitative data in the SIS or consistent with the Final Determination. As a critically endangered community grassland and scattered/clumps of trees representative of CPW are important to its survival. Grassland areas can be highly diverse; it is well known that the greatest diversity within CPW is within the ground cover.
- “All species that occur within the proposed development area also occur more abundantly in the Regional Park”. There is no evidence provided to support this statement either in the SIS or the peer review. Advice that I have received from OEH is that there is not a comprehensive listing of plant species from the Regional Park to-date.

The review does not examine the Plan of Management and concept plans for the Regional Park in sufficient detail despite identifying that protection and good management of CPW within the Regional Park is critical to the offset proposal. *Hawkeswood concludes that development should proceed if the Regional Park is properly managed.* Closer scrutiny of the documents would have shown that a level of management commensurate with a critically endangered community is not a reality (see earlier discussion under appropriate offset). To achieve a primary conservation focus requires gazettal and management as a nature reserve or national park. Mr Hawkeswood clearly alludes to this in section 5 of his review – “I believe the Regional Park should be made eventually into a Nature Reserve”. He also requires that CPW within the Regional Park be “restored to its original condition”. There is no chance of the former happening and the potential for restoration to its original condition is extremely limited due to the multi-purpose nature of a Regional Park. There appears to be no serious discussion of these issues in the council report although Mr Hawkeswood is essentially saying in their absence the proposed offset is inadequate.

The peer review concludes that all DG’s requirements *appear to have been satisfactorily answered*. However, fifteen issues were identified in the WSCA submission clearly indicating a lack of robustness & compliance.

Several issues raised by Hawkeswood in his review, however, do warrant consideration but there is no indication that this has been done in the council report. These issues include:

- Inconsistent condition assessment. The photo of mature CPW taken in the Regional Park (photo 4.1 in SIS) is not indicative of maturity. A larger, more mature tree is shown in photo 4.2 of SIS taken from the subject site. Furthermore, Hawkeswood states that “there are various extant trees within the proposed development areas that are of an age as great or even greater than most of the trees within the Regional Park” (section 2 (a) of review).
- Impacts of the development along its boundary with the Regional Park, including edge effects, are not fully described and therefore assessed (section 2 (d) of review).
- Inadequate field survey for the endangered plant *Pimelea spicata* (last point of section 2).

## Summary

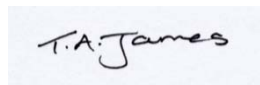
It is my opinion that there is likely to be a significant impact on a local occurrence of *critically endangered* CPW including adjoining areas of the Regional Park identified as Priority Conservation Land. For additional detail see James (May, 2011).

The assumption that the impact is sufficiently offset by approx. 450 ha of variable condition CPW occurring within the Regional Park is flawed for many reasons discussed. Across the Western Precinct some 189 ha of CPW will be lost as well as additional areas across the SMP. These are all “offset” by the Regional Park. The council report suggests that the entire 900 ha of vegetation is an offset yet there is no argument provided to support offsetting CPW with other communities.

The offset is not supported by robust scientific methodology and is not consistent with offsetting principles. Use of the Regional Park as a multi-use reserve does not provide the level of protection and management commensurate with a critically endangered community. Accordingly on the advice of T. Hawkeswood development should not proceed in the absence of proper management. Furthermore, the Regional Park is an existing reserve and determined by national criteria prior to upgrading of the community to critically endangered status. Re-assessment of offset requirements based on state criteria and current listing advice is required.

The peer review was not undertaken by a specialist/expert in Cumberland Plain Woodland and is deficient in identifying and addressing key issues. The significant influence that the peer review appears to have on Council’s decision to approve the developments (based on the council report) is both inappropriate and misguided.

In accordance with the TSC Act (1995) if a significant impact is likely to occur the SIS should be referred to the Director-General of the Office of Environment and Heritage.



Teresa James Flora Consultant

**TERESA JAMES FLORA CONSULTANT** – Specialist in flora surveys, plant identification, conservation assessment and botanical training.

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## ***Curriculum Vitae: Teresa Ann James***

**Home & work address:** 835 Caparra Road, Caparra NSW 2429.

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### **Key positions:**

- Botanist/ecological consultant specialising in vegetation survey, plant identification and conservation assessment.
- Until October 1998 held position of Identifications Botanist, Plant Sciences, National Herbarium of New South Wales, Royal Botanic Gardens, Sydney.

### **Qualifications:**

Bachelor of Science (Combined Honours in Biology and Geography) - University of Exeter, England. 1978.

### **Accreditation:**

Accreditation awarded (2008) as a BioBanking Assessor under the Threatened Species Conservation Act 1995 (NSW) Accreditation number 0017.

### **Employment:**

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|-----------------|---|
| 1978 (3 months) | Technical Assistant, Biological and Chemical Research Institute, Rydalmere (Department of Agriculture).                               |
| 1978-1998       | Employed at the Royal Botanic Gardens, Sydney.  |
| 1978-1979       | Temporary Herbarium Assistant   |
| 1980-1982       | Technical Officer, Botanical Information Section  |
| 1982-1986       | Acting Identifications Botanist, Botanical Information Section  |
| 1987-1991       | Technical Officer, Botanical Information Section  |
| 1991-1994       | Acting Identifications Botanist, Botanical Information Section  |
| 1994            | Secondment 4 days/week to World Heritage Assessment of the Blue Mountains (consultancy for NSW National Parks & Wildlife Service).    |
| 1994            | Permanent appointment as Identifications Botanist.  |
| 1994-           | Appointed Botanical Information Section Co-ordinator.   |
| 1996-1997       | Secondment to NSW National Parks & Wildlife Service as Flora Officer for Urban Bushland Biodiversity Survey. Stage 1: Western Sydney. |
| 1994-1998       | Identifications Botanist & Botanical Information Section Co-ordinator.  |
- Oct 1998-present Flora consultant – self- employed
- Undertake a range of surveys, reviews and assessments primarily for government departments. Preparation of seven (eight)-parts tests and species impact statements.
  - Expert witness in the Land & Environment Court.
  - Botanical training for local councils and community groups.

### Longer-term projects:

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|-------------------|--|
| 1998-1999         | Vegetation sampling for NSW National Parks & Wildlife Service - Western Sydney Vegetation Mapping Project.               |
| 1999              | Flora consultant to Eastern Gas Pipeline (Duke Australia Operations).  |
| 2000              | Preparation of Fire Ecology Manual for Rural Fire Service and UWS.   |
| October 2000-2003 | Flora consultant to Biosis Research for Penrith City Council – proposed developments & TSC Act issues at Erskine Park.   |
| 2001              | Field sampling and truthing for vegetation community mapping project - Baulkham Hills LGA. Baulkham Hills Shire Council. |

2001-2003	Qualitative and quantitative vegetation surveys (including rare plant species and ecological communities, weeds and other threats, environmental assessment) of Wingecarribee Swamp with Sainty & Associates for the Sydney Catchment Authority.
February 2002-May 2002	Review of wetland boundaries and general vegetation mapping and condition assessment within Baulkham Hills local government area (for Baulkham Hills Shire Council).
2003	Vegetation survey in the Hunter, Nattai & Bargo districts as part of the National Parks & Wildlife Service Vegetation Survey Program.
2002-2007	Flora survey/monitoring – Dr Charles McKay Reserve, Mt. Druitt. Blacktown City Council.
September 2005 –2006	Field validation for Foreshore Vegetation Mapping Project on Sydney Harbour for Botanic Gardens Trust and NSW Maritime Services.
September 2000-2008	Flora consultant to Liverpool City Council – provide review & advice relating to Development Applications & special projects.
February -May 2007	Field survey for Sydney Metropolitan Catchment Management Authority/DECC vegetation mapping. Plot data recorded for 100 sites within SMCMA.
January-February 2008	Hunter Councils Vegetation Mapping Project - field survey in upper Hunter
May 2008-2010	Vegetation mapping and assessment of Blue Gum High Forest and Turpentine Ironbark Forest in Ku-ring-gai local government area
August 2008-Oct 2009	Flora advice to Ku-ring-gai Council - review of Development Applications, Land and Environment Court proceedings

\*See consultant reports for other projects/surveys.

### **Botanical Information Section Co-ordinator/Identifications Botanist**

The botanical information section of the herbarium provides plant identifications and botanical/ecological information to other government departments, educational institutions and the wider community. Responsibilities included:

- Provision of plant identifications and botanical/ecological information
- Vegetation surveys and assessments as required
- Supervision and welfare of staff and volunteers within the section
- Effective operation of the botanical information service

### **Special projects:**

#### Assessment of the World Heritage Values of the Blue Mountains and surrounding plateaus

An assessment of the natural and cultural values of the sandstone plateaus of the Blue Mountains and surrounding areas was funded by the Federal and State Governments to determine the potential for world heritage nomination. A team of people worked on the project from the Royal Botanic Gardens, Australian Museum (cultural values) and experts from local universities. I was project co-ordinator for the assessment, wrote much of the text for the natural values sections and was editor of the final report. This report was used as a basis for the successful Blue Mountains World Heritage nomination (June 1998).

#### NPWS Urban Bushland Biodiversity Survey. Stage 1: Western Sydney

Documentation of biodiversity and conservation values in Western Sydney was the first priority project undertaken within the State Biodiversity Survey Program. The survey gave emphasis to threatened species, communities and habitats. The region was documented on a local government area basis. I co-ordinated the flora surveys and was principal author for the flora reports.

### **Committee & community participation**

- Member of NPWS Cumberland Plain Woodland Recovery Team (1998).
- Member of NPWS Acacia pubescens Recovery Team (1998 to 2002).

- Member, Green Corridors Strategy Steering Committee. Upper Parramatta River Catchment Trust. (1997-2000).
- Member, Water Quality Strategy Steering Committee. Upper Parramatta River Catchment Trust (1995-7).
- Member, State of the Environment Report Steering Committee for Holroyd City Council (1995-2002).
- Botanical Advisor for Management Committee, Greystanes Creek Restoration Project (1993-2000).
- Blue Gum High Forest Workshop / Advisory Committee – Ku-ring-gai Council. (2007).

**Particular expertise:**

***Plant Identification:***

- New South Wales plants, native and naturalised (18 years experience in the Botanical Information Section of the Royal Botanic Gardens, Sydney). Specimens received from all over state. Also cultivated plants.
- Specialist in Sydney flora.
- Prepared taxonomic treatments for various plant families in the publication Flora of New South Wales, volumes 1-4, produced by the Royal Botanic Gardens, Sydney.
- Conduct plant identification workshops both through the RBG and the University of Western Sydney.

***Documentation and conservation/ impact assessment: plant communities and species***

- Extensive range of sites surveyed with species lists compiled over the last twenty five years, particularly in Western Sydney, the Blue Mountains and Southern Highlands. Plant specimens collected and incorporated into the National Herbarium of N.S.W. Information used in numerous reports and books eg. World Heritage Assessment of the Blue Mountains, the NPWS Urban Bushland Biodiversity Survey, Rare Bushland Plants of Western Sydney and various papers.
- Prepare Tests of Significance and Species Impact Statements as required under current legislation (TSC Act, EPBC Act).
- Prepare Statements of Evidence & affidavits for the Land & Environment Court.
- Provide advice to local residents, environmental groups, developers, government agencies and councils concerning the identification of communities and species, impacts of proposed developments, the ecological effects of urbanisation, flood mitigation and management practices such as mowing, burning etc.

***Education & training***

- Involvement on committees or in groups providing technical advice and training eg. Greystanes Creek Management Committee, Upper Parramatta River Catchment Trust steering committees, Hawkesbury Rainforest Network.
- Presentations/talks eg. National Parks Association, Society of Australian Plants, University of NSW, Landcare groups, local councils.
- Conduct plant community and species identification workshops/courses/tours through the Royal Botanic Gardens and the University of Western Sydney. Community Links Courses presented include: An introduction to Cumberland Plain Woodland (1998), Introduction to the identification of grasses (1999) and Cumberland Plain Woodland and River-flat Forest of Western Sydney-identification and conservation assessment (1999).
- Prepared Fire Ecology Manual for Rural Fire Service (2000).
- Training for local government in threatened species, endangered ecological communities and biodiversity conservation.
- Publications eg. primary author of revised edition of Rare Bushland Plants of Western Sydney (Royal Botanic Gardens 1999), contributor to Flora of New South Wales (Royal Botanic Gardens).

Recent courses/workshops & tours provided to local councils/catchment management trusts/consultancies:

- Sept. 2004 - Threatened Species Tour for Baulkham Hills Shire Council bush care workers & council staff
- October 2004 – Significant Plant Communities-of Baulkham Hills Shire Council – tour for council staff
- February 2005 – Community workshop in Cumberland Plain Woodland for Holroyd City Council
- July-August 2005 - Biodiversity training for Liverpool City Council – 3 workshops for council officers
- September 2005 - Threatened Species Tour for Baulkham Hills Shire Council bush care workers
- August 2007 - Threatened Species Tour for Baulkham Hills Shire Council bush care workers
- October 2007 – Identification of plants in Cumberland Plain Woodland – for Hawkesbury Nepean CMA.
- April 2008 – Basic grass identification course for Baulkham Hills Shire Council (for bushcare volunteers).
- August 2008- Threatened Species Tour for Baulkham Hills Shire Council bush care workers
- November 2008 to April 2009 – Weedy Grass Identification Workshop x 3 for Sydney Metro CMA.
- August 2009- Threatened Species Tour for Baulkham Hills Shire Council bush care workers
- October 2009 – EEC identification field day for Hawkesbury-Nepean CMA

- August 2010 - Threatened Species Tour for Baulkham Hills Shire Council bush care workers
- October 2010 – Cumberland Plain Woodland training for SMEC
- April 2011 – Field training in identification of communities & plants on the Cumberland Plain for Hawkesbury Nepean CMA.
- June 2011 – Presentation to council staff on threatened flora & fauna and biodiversity conservation within the Hills Shire.

#### **Courses completed:**

4WD Operators course (1993) NSW Traffic Education Centre, Armidale.  
 Low risk driving course (1993) as above  
 St. Johns Ambulance Advanced First Aid Course & Remote Area First Aid Course (1993, 1997, 2001)  
 Fred Pryor seminars:  
 Self-directed Work Teams (1993)  
 How to Handle Difficult People (1993)  
 Management Problems of the Technical Person in a Leadership Role (1994)  
 How to Supervise People (1995)  
 How to Manage Stress (1995)

#### **Publications/booklets:**

- Stepnell, K. & James, T. A. (1986). *Australia's Native Flowers*. Child & Henry Publishing Pty. Ltd.
- James, T.A. (1988). *Bertya ingramii* (Euphorbiaceae) a new species from New South Wales. *Telopea* 3(2): 285.
- Bedford, D. & James, T. (ed.) (1992). *Collection, Preparation & Preservation of Plant Specimens*. Royal Botanic Gardens, Sydney.
- Powell, J.M. & James, T.A. (1993) *Epacris sparsa* (Epacridaceae) reinstated. *Telopea* 5(2):375-380.
- James, T.A. (1990-1993) in *Flora of New South Wales*. Royal Botanic Gardens, Sydney
- Volume 1: Euphorbiaceae (part), Violaceae.
- Volume 2: Fabaceae (part).
- Volume 3: Celastraceae, Rubiaceae (part).
- Volume 4: Iridaceae (part), Poaceae (part).
- James, T.A. (1994). Observations on the effects of mowing on native species in remnant bushland, Western Sydney. *Cunninghamia* 3(3).
- Kodela, P.G. & James, T.A. & (1994) Aspects of the ecology and conservation status of the rare herb *Gentiana wingecarribiensis*. *Cunninghamia* 3(3).
- James, T.A. (1994) Review of a Key to Australian Grasses by B.K. Simon. *Australian Systematic Botany Society Newsletter* No.78.
- Contributor to Bowen Mountain Bushwalks (1994). Bowen Mountain Association.
- Kodela, P.G, James, T.A & Hind, P. (1996). Vegetation and flora of swamps on the Boyd Plateau, Central Tablelands, New South Wales. *Cunninghamia* 4(3).
- James, T.A. (1996). New combination in *Viola* (Violaceae). *Muelleria* Vol. 9 pp.35-36.
- James, T.A. NSW NPWS. (1997). Urban Bushland Biodiversity Survey. Stage 1: Native flora in Western Sydney.
- Hosking, R. J & James, T.A. (1998). An analysis of the native and exotic flora of the North Western Slopes upstream of the junction of the Peel and Namoi Rivers, New South Wales.
- James, T.A., McDougall, L & Benson, D. (1999). Revised edition. *Rare Bushland Plants of Western Sydney*. Royal Botanic Gardens, Sydney.
- James, T.A. (2009) Threatened plant species of Baulkham Hills Shire – unpublished booklet for Baulkham Hills Shire Council.
- James, T.A. (2009) Vegetation communities of Baulkham Hills Shire – unpublished booklet for Baulkham Hills Shire Council.

#### **Reports**

List of unpublished species lists and reports over the last 15 years.

- Kodela, P.G., James, T.A., Coveny, R.G. and Hind, P.D. (1992). Reconnaissance survey of the vegetation at Long Swamp, near Penrose, Central Tablelands, N.S.W. Royal Botanic Gardens, Sydney. Unpublished report.
- James, T.A. & Kodela, P.G. (1992). Species list for Little Cattai Creek and tributary creeks. Royal Botanic Gardens, Sydney. Unpublished species list.
- James, T.A. & Kodela, P.G. (1993). Plant species recorded from Butlers Swamp, Central Tablelands, N.S.W. Royal Botanic Gardens, Sydney. Unpublished species list.

- James, T.A. Coveny, R.G., Kodela P.G. and Hind, P.D. (1993). Plant species recorded from a wetland area on the northern side of Fitzroy Falls Reservoir, Central Tablelands, N.S.W. Royal Botanic Gardens, Sydney. Unpublished species list.
- James, T.A., Hind, P.D., Kodela, P.G. (1993). List of native species recorded for the Vale of Avoca Reserve. Royal Botanic Gardens, Sydney. Unpublished species list.
- Coveny, R.G. and James. T.A. (1993). Plant species recorded from the Dr. Charles McKay Reserve, Mt. Druitt, Western Sydney. Royal Botanic Gardens, Sydney. Unpublished species list.
- James, T.A. (1994) Native plant species recorded from Alpha Park Reserve, Greystanes. Unpublished report.
- James, T.A. (1994) Botanical Significance of the Lower Canal, Greystanes. Unpublished report.
- James, T.A. (2004 revised 2009). Rare and threatened plant species of Baulkham Hills Shire for Baulkham Hills Shire Council.
- Allen, CB, Benson, DH, James, T & Kelleway, J (2007). Vegetation map of the Sydney Harbour Foreshore, December 2006. Prepared for NSW Maritime and the Sydney Metropolitan CMA by Royal Botanic Gardens, Sydney.

#### Consultancies:

- James, T.A. (1992) Vegetation Survey of proposed pipeline and irrigation sites for Goulburn wool scour. Unpublished report for Gunninah Consultants.
- James, T.A. (1992). Survey of Vegetation along New Line Road at Cherrybrook. Unpublished report for Gunninah Consultants.
- James, T.A. (1993). Vegetation survey of the eastern section of the Australian Defence Industries site, St. Marys. Unpublished report for Gunninah Consultants.
- James, T.A. *et al.* (1994) Royal Botanic Gardens Assessment of the World Heritage Values of the Blue Mountains and surrounding plateaus.
- James, T.A & S. Mcune (1998a). Flora assessment for the proposed Highlands Resort development near Picton. Report prepared for DLWC.
- James, T.A. (1998b). Cumberland Plain Woodland Assessment, Claremont Meadows, Penrith. Report prepared for Biosis Research. Subsequent assessment of significance of Cumberland Plain Woodland at the site for Species Impact Statement (Dec. 1998).
- James, T.A. & S. Cook (1998d). Flora Survey of Domain Creek, Parramatta Park.
- Douglas, S.M. & James, T.A. (1998e). Report on the native flora and development potential of Lot72 DP661069 & Lot 75 DP 67236 Sirius Road, Voyager Point. Report to Liverpool City Council.
- James, T.A. (1999a). Species profiles and environmental impact assessment guidelines for the rare species *Epacris sparsa*, *Kunzea cambagei*, *Acacia baueri* subsp. *aspera*, *Euphrasia bowdeniae* and *Zieria covenyi*. Prepared for NSW NPWS.
- James, T.A. (1999b). 8 Part Test- proposed laying of underground electrical conduit at the Crest of Bankstown. Report to Bankstown City Council.
- James, T.A. (1999c). 8 Part Test for drainage works at the Crest of Bankstown. Report to Bankstown City Council.
- James, T.A. (1999d). Overview of vegetation and assessment of conservation significance at proposed Erskine Park Employment Area. Report prepared for Biosis Research.
- James, T.A. (1999e). Vegetation review and survey of Area 3, Chullora Industrial Estate. Report prepared for Mather & Associates and Business Land Group.
- James, T.A. (Sept 1999). Review of management plan for the Highlands Resort, Picton - report for DLWC.
- James, T.A. (Oct 1999). Field survey and 8-part test for *Acacia baueri* subsp. *aspera*. Report for the Illawarra Shooting Association.
- James, T.A. (Nov 1999). Flora assessment - proposed works at Oatlands Golf Course. Report to Oatlands Golf Club.
- James, T.A. (Dec 1999). Flora assessment - Bungarribee Creek, Blacktown. Report to Blacktown City Council.
- James, T.A. (Feb 2000). Norfolk Reserve, Greenacre - Plant Survey and 8 Part Test for proposed walking tracks. Report to Bankstown City Council.
- James, T.A. (March 2000). Flora survey along Clavering Road, Seaforth.
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