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Senate Standing Committee on Environment, Communications and the Arts
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# Inquiry into the operation of the *Environment Protection and Biodiversity Conservation Act 1999*

This submission refers primarily to the first three items in the Terms of Reference for this Inquiry.

In particular, important, ongoing issues have been raised by the Auditor-General in the Australian National Audit Office -Audit Report No.38 2002–03 : Performance Audit : Referrals, Assessments and Approvals under the *Environment Protection and Biodiversity Conservation Act* 1999, particularly the sections on:

* gaps and shortcomings in referral information,
* lessons learnt in the first 10 years of operation of the EPBC Act, and
* the cumulative impacts of EPBC Act approvals on threatened species and ecological communities.

Since completion of this audit report, these issues still have not been adequately addressed and in fact, substantially incomplete referrals that lack scientific rigor and environmental risk assessment consistent with the EPBC Act, continue to be accepted as a basis for critical decision-making. Importantly, inaccurate decisions made in relation to 'controlled action" determinations are exacerbated throughout the remainder of the approval process.

My submission uses a current project, *Melbourne Water/Water management and use/Goulburn River, to Sugarloaf Reservoir to the N/E Melbourne/VIC/Sugarloaf Water Pipeline Project: EPBC Reference Number: 2008/3960*, as a case study to illustrate important issues of concern in relation to the operation of the EPBC Act.

## Case Study

## Melbourne Water/Water management and use/Goulburn River, to Sugarloaf Reservoir to the N/E Melbourne/VIC/Sugarloaf Water Pipeline Project

## EPBC Reference Number: 2008/3960

1. Numerous submissions, including valid, detailed claims in relation to potential significant impacts by this major infrastructure project (including all associated infrastructure like pump stations, power stations and high voltage power lines) on a large number of Matters of National Environmental Significance, were made by community groups and individuals in relation to the referral documents for this project.

However, these submissions were largely dismissed by the Commonwealth in its *Statements of Reasons for Decision on Referral and Assessment Approach*. No scientific basis was provided for excluding the identified items of NES from the Controlled Action decision.

Also, the Precautionary Principle was not applied, even given the high probability of Matters of NES likely to be significantly affected. The EPBC guidelines for assessing potential impacts on Matters of NES states:
*When deciding whether or not a proposed action is likely to have a significant impact on a matter of national environmental significance, the precautionary principle is relevant. Accordingly, where there is a risk of* ***serious*** *or* ***irreversible*** *damage, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on a matter of national environmental significance.*

For example, the Critically Endangered, Golden Sunmoth, *Synemon plana* and the Endangered Leadbeater's Possum *Gymnobelideus leadbeateri* were excluded from the "controlled action" decision. This determination was based primarily on the Proponent's substantially incomplete Referral documentation that did not include specific surveys for these and many other EPBC listed species likely to be present in sub-optimal habitat within the project area, even though the respective species have been recorded in similar sub-optimal habitats within the bioregion. Populations of these species, if present, could be critical to the genetic variability and hence, long term viability of local populations of these EPBC listed species.

The Advisory Committee appointed by the Victorian Government to assess presentations to the Project Impact Assessment, did not question the list of EPBC listed species included in the "controlled action", so many EPBC listed species likely to occur have been excluded and hence, inadequately considered for this major project, with potentially serious consequences for local populations and their respective Recovery Plans (Table 1 and Appendix A).

2. The Project Impact Assessment (PIA) approved by the Commonwealth as the accredited process for the "controlled action" decision was substantially incomplete throughout the community consultation period and the Panel Hearing process convened and reported on by the Advisory Committee. Moreover, the PIA does not relate to any formal State legislation or guidelines so the Commonwealth's support for it as the "accredited process" is of particular concern.

The PIA for the Sugarloaf Pipeline Project can only be regarded as a preliminary overview in terms of the environmental and cultural heritage assets and potential impacts. Surveys and assessments were superficial, being undertaken within extremely limited time constraints and heavily reliant on desktop studies and rapid survey techniques. Major gaps exist in field assessments of the entire project area and target surveys for threatened species likely or possible to occur within and adjoining the project area.

Importantly, the PIA did not meet the requirements of the EPBC Act in relation to addressing the "controlled action" decision. The PIA did not address specific impacts and specific mitigation strategies for each EPBC listed species based on the EPBC Guidelines for '*significant impact criteria*', due to its limited threatened species selection for consideration, especially excluding detailed consideration of the Critically Endangered Golden Sun Moth, *Synemon plana* and the Endangered Leadbeater's Possum *Gymnobelideus leadbeateri,* lack of quantifiable assessments of nationally threatened species populations that are 'likely' or 'possibly' affected, lack of assessment of the extent of impacts for each species with respect to their Recovery Plans, and lack of accountable mitigation and monitoring strategies.

Also of particular concern, is that the PIA has focused on the absolute minimal requirements considered necessary to satisfy just the EPBC Act (and FFG Act), instead of embracing the Commonwealth's (and Victoria's) proactive legislation, related strategies, action plans and the IGAE, that aim to protect Australia's unique biodiversity and cultural heritage. This direction, so clearly reflected throughout the PIA, has seriously diminished community expectations and confidence in the current PIA process. Moreover, the PIA has missed excellent opportunities to constructively contribute to the implementation of these strategies and plans with important information about particular species and ecological communities.

3. The Environmental Management Strategy, Vegetation Net-gain and Off-set Management Plans, further threatened species surveys and plans are in progress for this major infrastructure project. However, this information has not been made publicly available, it has not been presented in a revised, completed PIA and the public has not been given the opportunity to evaluate or comment on this information.

The inadequacy of this approach was the subject of the Victorian Auditor General's report '*Planning for Water Infrastructure in Victoria*' (April 2008) which revealed the lack of stakeholder consultation and the 'inadequate levels of rigor applied to estimate the costs, benefits and risks' of this project in particular, and other Victorian water plan projects.

Importantly, additional recent research published by CSIRO and Birds Australia in relation to climate change has major implications that are particularly relevant to this project, yet they have not been considered.

Moreover, the Commonwealth is currently proceeding to make a decision whether to approve this project, with conditions, based on this unsatisfactory and incomplete process that lacks accountability and credibility.

4. Given that the Sugarloaf Pipeline Project proponent plans to carry out threatened species surveys and, depending on the survey results, implement species-specific management plans in stages as the project is being constructed and implemented, this approach severely compromises options and strategies necessary to effectively protect Matters of National Environmental Significance within a bioregional context.

Importantly, with respect to this project, the combination of the impacts of habitat loss and fragmentation will be compounded by climate change. Accordingly, the proposal to replace 'habitat hectares' elsewhere in the bioregion needs to be reconsidered under the climate change scenario, particularly in terms of the long-term survival of:
Sections 16, 17B : Wetlands of international importance
Sections 18, 18A :Threatened species and ecological communities
Section 20: Migratory species
within the project area and downstream of the take-off point at Yea.

Moreover, in accordance with the EPBC Act – *Environment Assessment Process Guidelines*, replacing "habitat hectares" elsewhere in the bioregion is intended to compensate for habitat loss, but this action does NOT mitigate the impacts of habitat fragmentation or these cumulative impacts on threatened species likely to be affected by this project.

5. Environmental Risk Assessment and Accountability
The project PIA did not determine the magnitude of specific environmental impacts and the risks associated with these impacts. It also lacked quantitative baseline data as an integral part of risk assessment comprising statistically designed and implemented monitoring and mitigation programs.

This information is essential to determine if the project proceeds, and if it does, to effectively and objectively, assess and quickly address impacts during project construction and operation with respect to significant environmental (aquatic and terrestrial) and cultural heritage values and also, to determine compliance with species-specific Recovery Plans and predetermined standards.

## Recommendations

1. Referral documentation needs to be substantially complete prior to being submitted for EPBC decisions and community comment.

2. EPBC 'accredited processes' for 'controlled action' determinations need to conform to a formally recognised process under State/Territory legislation and be complete prior to community consultation and panel hearings.

3. All major infrastructure projects should require an Environmental Impact Statement consistent with the EPBC Act. The EIS should include the results and analyses of species-specific and ecological community surveys, including seasonal surveys over a minimum 12 month period, to ensure adequate assessment of seasonal variability as a basis for detailed evaluation in accordance with EPBC Guidelines for '*significant impact criteria*'.

4. With respect to the Environmental Impact Statement, the project proponents should be requested to follow the approach developed by the Ecological Society of Australia in their Position Statement on Environmental Impact Assessment as all the issues highlighted below are particularly relevant:

*"the Ecological Society of Australia (ESA) advocates peer review of ecological studies for EIA to help ensure competent work and adequate scales of investigation. Adequate time and funding should be available for comprehensive ecological studies when these are justified for decision-making purposes. The conclusions drawn in ecological reports for EIA should always be substantiated by data or reference to the literature. The proponents of large developments, likely to have significant ecological impacts, should be required to support rigorous scientific monitoring programs. This involves replicated sampling before and after the development commences, at impact and control sites, to detect human impacts above those which could be attributed to natural variation*." (Source: http://www.ecolsoc.org.au/)

Yours sincerely,

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## Appendices

**Table 1 :** Species subject to the controlled action determination and EPBC listed species excluded from the determination of 13/2/08 for the Sugarloaf Pipeline Project.

**Appendix A :** Examples of EPBC Act non-compliance and Matters of National Environmental Significance excluded from the 'controlled action' determination of 13/2/08

# Table 1

**a) Species currently subject to the Controlled Action determination of 13/2/08 – the proposed action will or is likely to, have a significant impact, namely:**

**Sections 18, 18A :Threatened species and ecological communities**

Spotted Tail Quoll – *Dasyurus maculatus maculatus* - endangered
Southern Brown Bandicoot, *Isoodon obesulus obesulus* - endangered
Smokey Mouse (konoom), *Pseudomys fumeus* - endangered
Macquarie Perch, *Macquaria australasica* - endangered
Trout Cod, *Maccullochella macquariensis* - endangered
Matted Flaxlily, *Dianella amoena* - endangered
Little Pink Spider-orchid, *Caladenia rosella* - endangered
Striped Legless Lizard, *Delma impar* - vulnerable
Growling Grass Frog, *Litoria raniformis* - vulnerable
Murray Cod (Goodoo), *Maccullochella peelii peelii* - vulnerable
River Swamp Wallaby-grass, *Amphibromus fluitans* - vulnerable
Purple Clover, *Glycine latrobeana* - vulnerable

**b) Additional EPBC listed species on which the proposed action will or is likely to, have a significant impact and that should be subject to the Controlled Action, namely:**

**Sections 18, 18A : Threatened species and ecological communities**

Golden Sun Moth, *Synemon plana* - critically endangered
Leadbeater's Possum, *Gymnobelideus leadbeateri* - endangered
Swift Parrot, *Lathamus discolor* - endangered
Regent Honeyeater, *Xanthomyza phrygia* - endangered
Buxton Gum, *Eucalyptus crenulata* - endangered
Dwarf Galaxias, *Galaxiella pusilla* - vulnerable
Australian Grayling, *Prototroctes maraena* - vulnerable
Grey-headed Flying Fox, *Pteropus poliocephalus* - vulnerable
Australian Painted Snipe, *Rostratula australis* – vulnerable

**Sections 16, 17B : Wetlands of international importance**

**Section 20 : Migratory species**

# Appendix A

# Examples of EPBC Act non-compliance and Matters of National Environmental Significance excluded from the 'controlled action' determination of 13/2/08

## 1. Golden Sun Moth, *Synemon plana*

(Critically Endangered – EPBC Act, Listed – FFG Act, Endangered – DSE 2007 list)

The Golden Sun Moth is listed as **Critically Endangered** under the EPBC Act and is listed as endangered in Victoria.

The Golden Sun Moth's peak activity time in the local area is late November to early December when flora fauna surveys for the pipeline were being carried out in the Yea area. Typical of invertebrates, the Golden Sun Moth's population fluctuates from year to year but 2007 was a particularly good year for recording this species.

Although male Golden Sun Moths can fly short distances, usually low to the ground, females are flightless so this species is localised in occurrence and are therefore susceptible to habitat disturbance and fragmentation:

> "The females rarely fly, unless disturbed and tend to walk from tussock to tussock to lay eggs (TSSC 2002). Because of the females' inability to fly and the males' reluctance to fly away from suitable habitat, the Golden Sun Moth cannot colonise sites further than 200 m away (Clarke & O'Dwyer 1999). Males may be dispersed by wind, however there is little possibility of wind-assisted female movement (Clarke & Spier 2003).
>
> Males of the Golden Sun Moth are generally seen flying about one metre above the ground on bright sunny days during Nov. and Dec. between 11am to 2pm so as to catch the hottest part of the day. This flight period lasts approximately 6-8 weeks. The timing and duration of the flying season varies seasonally (Edwards 1993)."
>
> Reference: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=25234 (including references in the above quote)

Only brief mention is made on page 45 of the Flora and Fauna report to carrying out '*surveys for listed invertebrate species (such as the threatened Golden Sun Moth) will be conducted at the appropriate time of year*' and in the Conclusion on page 161: ***'Until further survey is completed and the species range confirmed, it cannot be concluded that the project will not have a 'significant' impact on this species.'***

If the project is approved to proceed as planned in mid-2008, there will be no opportunity for targeted surveys for the Golden Sun Moth prior to construction work being carried out through its potential habitat: ' large areas of suitable *Austrodanthonia* (Wallaby Grass) dominated habitat are present within the survey corridor' (including Sections A,B,C and D and possibly F) (p.161 Flora and Fauna Report).

The PIA report (p.24) and the EMP do not mention the high probability of the Golden Sun Moth, *Synemon plana*, occurring within the preferred pipeline corridor options, specifically the grassland and grassy woodlands of the Yea Rise and other Sections, or consideration of specific mitigating and management strategies if it is found within the pipeline corridor in accordance with the Golden Sun Moth Flora and Fauna Guarantee Action Statement and EPBC Act.

The Golden Sun Moth is only given a brief mention in Table 10 on page 70 - Section 4.5.2.2. *Potential Occurrence within the Pipeline option Corridors*, it is listed in the species lists on pages 166 and 296, and is again briefly mentioned on page 399 (Flora and Fauna Report). It is also listed as **likely** to occur in Sections A, B & C, and **possible** to occur in Sections D and F (Table 9, Environmental Assets p.78) of the PIA report. However, it is important to note that the Golden Sun Moth is not mentioned in the Flora and Fauna report under 4.7.2 Land Unit 2: Yea Rise (Sections A and B) p.80. or in Table12 p.134 in relation to threatened species affected by habitat fragmentation. Also, inclusion of the need for targeted surveys for the Golden Sun Moth should have been included on page 22 of the Flora and Fauna Report.

Given the limitations of the survey and assessment process, the Flora and Fauna report, EMP and PIA should have applied the precautionary principle and specifically addressed issues relating to the Golden Sun Moth, including making a recommendation that 'boring or trenchless' technology be an essential impact mitigation strategy for the Striped Legless Lizard/Golden Sun Moth grassland and grassy woodland habitats.

**Potential impacts and mitigation strategies specific to the Golden Sun Moth have not been included in the PIA (p.24) or in the Environmental Management Plan and therefore, the PIA does not address the EPBC Act's Significant Impact Guidelines for Critically Endangered species.**

## 2. Leadbeater's Possum, *Gymnobelideus leadbeateri*

Endangered (EPBC), Listed (FFG)

The EPBC Guidelines p.6 state: '*It is also necessary and important to consider off-site and indirect impacts of your proposed action on matters of national environmental significance*.'

Although identified as possibly occurring from previous records, Leadbeater's Possum, *Gymnobelideus leadbeateri,* is briefly mentioned as not being a species of concern because the pipeline options corridors through Toolangi State Forest do not include optimal habitat for this species. However, Leadbeater's Possum occurs in other forest habitats as detailed in the Leadbeater's Possum Recovery Plan (http://www.environment.gov.au/biodiversity/threatened/publications/recovery/leadbeaters-possum/index.html).

Habitat connectivity and mitigation of habitat fragmentation impacts are critical for the survival of Leadbeater's Possum and other EPBC and FFG listed species within Toolangi State Forest. Also, the cumulative impacts of the pipeline corridor, combined with the Melba Highway/other main roads, logging/fire break roads, logging areas and nearby substantially cleared agricultural land, will cause incremental habitat disturbance and loss, thereby exacerbating the impacts of habitat loss and fragmentation on threatened species, an important issue about cumulative impacts not adequately considered in the PIA.

# 3. National Heritage Place: Flora Fossil Site, Yea

The PIA for the Sugarloaf Pipeline Project does not address potential impacts on the integrity of the significant values of the Flora Fossil Site, Yea, a National Heritage Place and it does not mention any mitigation and management actions to protect these significant cultural heritage values.

**National Heritage Place : Flora Fossil Site, Yea**

> "The National Heritage Place known as the Flora Fossil Site, Yea includes Barclays Cutting on Limestone Road and the surrounding 13 hectares, 1.5km east-south-east of Yea.
>
> Located in and immediately adjoining a road cutting on a barren hillside, the Yea Baragwanathia Flora Fossil Site occurs within an area of anticlines and synclines with clearly defined fold belts. An anticlinal belt passes through Yea township, exposing the oldest sediments of the area within its core. A number of distinct, ancient fauna and flora fossil assemblages occur in the Yea area, all of which include elements of the Baragwanathia flora. The first plant/graptolite fossil deposits containing *Baragwanathia longifolia* at Yea were discovered in 1875." (Source: Australian Heritage Database)

Importantly:

> ***"The Flora Fossil Site, Yea contains fossils of some of the world's earliest land plants dating back to the late Silurian Period, 420 million years ago. The site is internationally significant for having the oldest assemblage of fossils known as the Baragwanathia Flora, named after the most commonly occurring plant, Baragwanathia longifolia. The site reveals valuable information about Australia's geological history, the evolution of plants and their successful adaptations to land.***
>
> *In the Yea area, Baragwanathia plant fossils occur in association with various species of graptolites in rock layers at two distinct levels or horizons that differ in age by about 10 million years.* ***Nowhere are these two horizons of fossil-bearing rocks exposed at the same locality because they are separated by more than 2500m of dark, grey-green, unfossiliferous siltstones****.*
>
> *Rocks exposed at the Flora Fossil Site, Yea belong to the lower, or older, of the two fossil-bearing rock horizons of Silurian age, approximately 420 million years old. In contrast, graptolite fossils occurring in the upper, or younger, level elsewhere in the Yea area, indicate that the rocks of this latter horizon are of early Devonian age, about 410 million years*." (Source: Jelinek, 2007)

The description of necessary construction activities demonstrates that construction of the pipeline and associated facilities has high potential to impact on Baragwanathia Flora/graptolite fossils in proximity to the National Heritage Place listed site and elsewhere in the Yea area. While some of these fossil-bearing strata may be from the more recent, upper horizon, they provide the critical, relative time scale for the older, lower horizon evident at the National Heritage Place and are thus an integral part of the overall significance of the Flora Fossil Site, Yea.

**Uniquely, the integrity of the National Heritage values of the Flora Fossil Site, Yea relate closely to the surrounding geological formations of the Limestone, Yea and Killingworth areas** (refer to diagram on page 3).

Without comparison between the various plant/graptolite fossil sites in the Yea area, the National Heritage values of the Flora Fossil Site, Yea, and its international significance, would be seriously compromised. Its significance within the context of the surrounding geological landscape is further highlighted by Garratt (1978) in which he states that: "*localities with graptolites and plants in intimate association are not common as implied by Couper (1965) and are not found on the same bedding plane*".

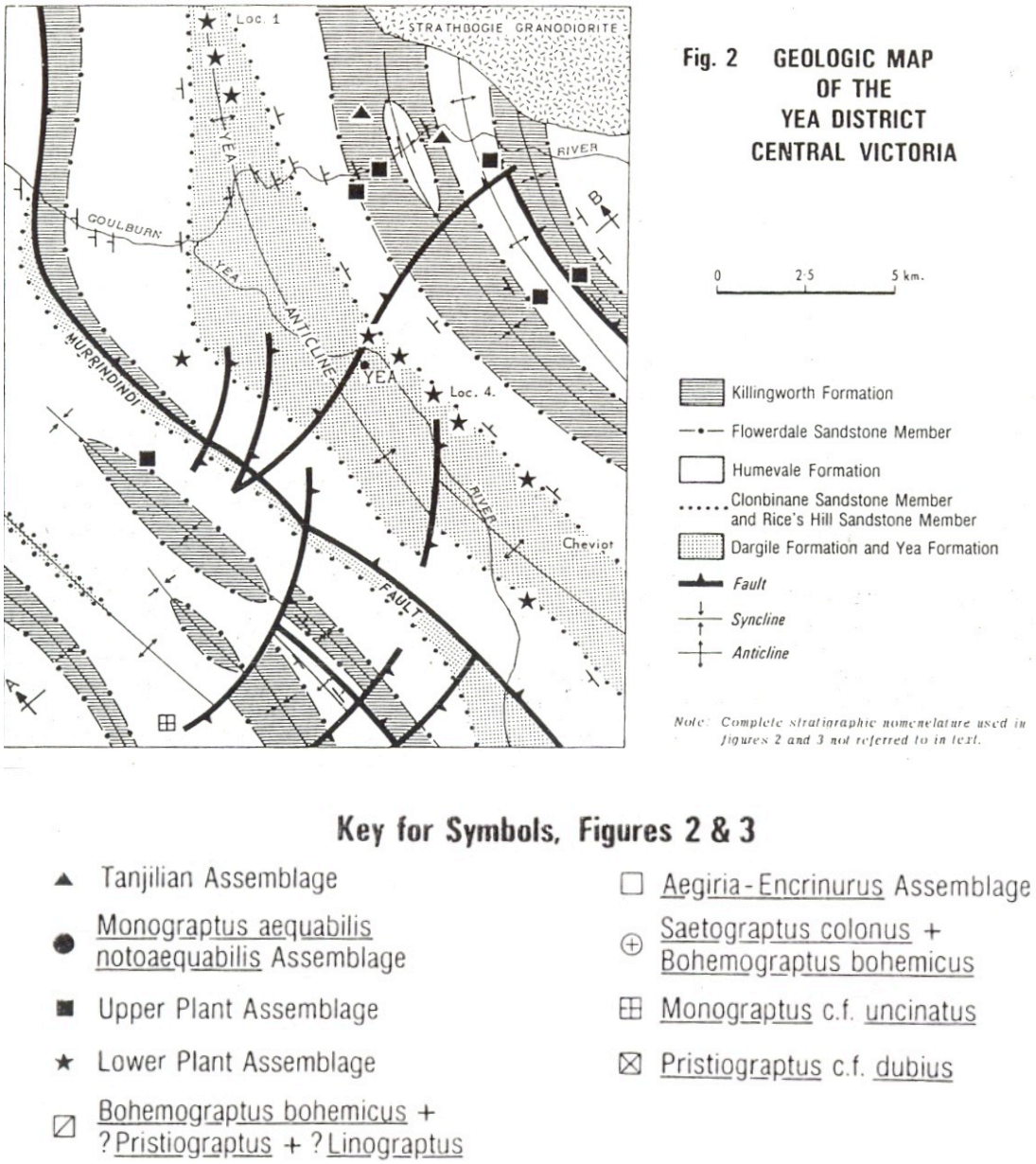
Importantly, the scientific significance and outstanding natural heritage values of the Flora Fossil Site, Yea relate to the Baragwanathia Flora/graptolite fossil assemblages in rocks of late Silurian age, yet controversy continues about the age and evolution of the first vascular land plants, including *Baragwanathia longifolia*, the distinctive and most significant species at this National Heritage Place. The existence of plant/graptolite fossil-bearing rock horizons from different Geological Periods in the Yea area provide critical comparison for current and future worldwide research on the evolution of land plants.

No assessment has been made of the potential impacts of the project on the integrity of the significant values of the Flora Fossil Site, Yea. In addition, no mention is made in any of the project documentation about identifying potential Baragwanathia Flora or graptolite fossil bearing rocks as part of the planning, construction or maintenance activities.

Other potentially important fossils sites may also be affected by the project. For example, fossils of new species of crinoids and a starfish were found during the original construction of Sugarloaf Reservoir (Frank Holmes, pers. comm. 2008).

**Accordingly, detailed checks for potentially significant Baragwanathia Flora/graptolite fossil bearing rocks need to be considered during planning, construction and maintenance activities. In addition, the Museum of Victoria should be involved in identifying potential fossil sites and also, recording and assessing the significance of any exposed fossil bearing rocks.**

Several scientific papers include detailed geological maps of the Yea area and highlight the locations of upper and lower plant/graptolite assemblages, as shown in the diagram below. Loc.4. is the National Heritage Place - Flora Fossil Site, Yea:




**Key for Symbols, Figures 2 & 3**

- ▲ Tanjilian Assemblage
- ● Monograptus aequabilis notoaequabilis Assemblage
- ■ Upper Plant Assemblage
- ★ Lower Plant Assemblage
- ▨ Bohemograptus bohemicus + ?Pristiograptus + ?Linograptus
- □ Aegiria-Encrinurus Assemblage
- ⊕ Saetograptus colonus + Bohemograptus bohemicus
- ⊞ Monograptus c.f. uncinatus
- ⊠ Pristiograptus c.f. dubius

Source: Garratt, M.J. 1978. New evidence for a Silurian (Ludlow) age for the earliest Baragwanathia flora. Alcheringa 2;217-224.

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