

Abridged Threatened Species Nomination Form

For nominations/assessments under the Common Assessment Method (CAM) where supporting information is available, but not in a format suitable for demonstrating compliance with the CAM, and assessment against the IUCN Red List threat status.

Cover Page *(Office use only for Assessment)*

Species name (scientific and common name):	<i>Latrobea colophona</i>
Nomination for (addition, deletion, change):	Addition
Nominated conservation category and criteria:	CR: B1ab(iii,v)

Scientific committee assessment of eligibility against the criteria:		
This assessment is consistent with the standards set out in Schedule 1, item 2.7 (h) and 2.8 of the Common Assessment Method Memorandum of Understanding.		Yes <input type="checkbox"/> No <input type="checkbox"/>
A.	Population size reduction	•
B.	Geographic range	•
C.	Small population size and decline	•
D.	Very small or restricted population	•
E.	Quantitative analysis	•

Outcome:		
<i>Scientific committee Meeting date:</i>		
<i>Scientific committee comments:</i>		
<i>Recommendation:</i>		
<i>Ministerial approval:</i>		<i>Date of Gazettal/ Legislative effect:</i>

Nomination/Proposal summary *(to be completed by nominator)*

Current conservation status				
Scientific name:	<i>Latrobea colophona</i>			
Common name:	None			
Family name:	Fabaceae	Fauna <input type="checkbox"/>	Flora <input checked="" type="checkbox"/>	
Nomination for:	Listing <input checked="" type="checkbox"/>	Change of status/criteria <input type="checkbox"/>	Delisting <input type="checkbox"/>	
1. Is the species currently on any conservation list, either in a State or Territory, Australia or Internationally? 2. Is it present in an Australian jurisdiction, but not listed?		Provide details of the occurrence and listing status for each jurisdiction in the following table		
Jurisdiction	State / Territory in which the species occurs	Date listed or assessed (or N/A)	Listing category i.e. critically endangered or 'none'	Listing criteria i.e. B1ab(iii)+2ab(iii)
International (IUCN Red List)				
National (EPBC Act)				
State / Territory	1. WA	2006	Critically Endangered	C1+C2a(i), D
		5/4/2017	Critically Endangered	B1ab(iii,v)
	2.			
Consistent with Schedule 1, item 2.7 (h) and 2.8 of the Common Assessment Method Memorandum of Understanding, it is confirmed that:				
<ul style="list-style-type: none"> this assessment meets the standard of evidence required by the Common Assessment Method to document the eligibility of the species under the IUCN criteria; 			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comments:				
<ul style="list-style-type: none"> surveys of the species were adequate to inform the assessment; 			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comments:	Further surveys in 2010 and 2015 located 3 new subpopulations. The number of mature individuals has also increased from 10 in 2005 to 1,982 in 2015. This is likely a result of ongoing management of dieback disease and grazing as well as further survey.			
<ul style="list-style-type: none"> the conclusion of the assessment remains current and that any further information that may have become available since the assessment was completed supports or is consistent with the conclusion of the assessment. 			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comments:	Since the assessment in 2005, three new subpopulations have been discovered, and the number of mature individuals has also increased to 1,982. However, the habitat of the subpopulations is highly threatened from dieback disease and rabbits with 31% mortality occurring from Autumn 2014 to December 2015 outside of a fenced enclosure. Without ongoing management a projected decline is expected. Now meets criteria B1ab(iii,v) for critically endangered.			
Nominated national conservation status: category and criteria				

Presumed extinct (EX) <input type="checkbox"/>	Critically endangered (CR) <input checked="" type="checkbox"/>	Endangered (EN) <input type="checkbox"/>	Vulnerable (VU) <input type="checkbox"/>
None (least concern) <input type="checkbox"/>	Data Deficient <input type="checkbox"/>	Conservation Dependent <input type="checkbox"/>	
What are the IUCN Red List criteria that support the recommended conservation status category?	B1ab(iii,v)		
Eligibility against the IUCN Red List criteria (A, B, C, D and E)			
<i>Provide justification for the nominated conservation status; is the species eligible or ineligible for listing against the five criteria. For delisting, provide details for why the species no longer meets the requirements of the current conservation status.</i>			
A.	Population size reduction (evidence of decline)	<ul style="list-style-type: none"> The number of mature individuals appears to fluctuate with an overall increase from 10 in 2005 to 1,982 in 2015, partly due to the discovery of new occurrences of the species. However outside of a fenced enclosure on Bluff Knoll, there has been 31% mortality of tagged plants from 2014 to 2015 due to grazing. Therefore it is difficult to calculate a definite percentage population reduction. Unable to assess 	
B.	Geographic range (EOO and AOO, number of locations and evidence of decline)	<ul style="list-style-type: none"> (B1) Using Minimum Convex Polygon (MCP) the EOO is 69 km². (B2) Area of Occupancy estimated 24 km² using the 2km x 2km grid method. Known from one location within Stirling Range National Park. Although additional surveys located three new subpopulations increasing plant numbers to 1,982, habitat is highly threatened from <i>Phytophthora cinnamomi</i>, fire, grazing and a drying climate. Outside of a fenced enclosure on Bluff Knoll, there has been 31% mortality of tagged mature individuals from 2014 to 2015 with minimal reproduction and seed set due to grazing. Meets criteria for Critically Endangered B1ab(iii,v) 	
C.	Small population size and decline (population size, distribution and evidence of decline)	<ul style="list-style-type: none"> Known from 1,982 mature individuals. (C2) Ongoing threats to habitat condition and extent from <i>Phytophthora cinnamomi</i>, fire, grazing and a drying climate, with projected loss of mature individuals due to grazing. (i) Number of mature individuals in all subpopulations currently less than 1,000. Largest subpopulation contains a total of 30% of mature individuals. Meets criteria for Vulnerable C2(a)(i) 	
D.	Very small or restricted population (population size)	<ul style="list-style-type: none"> Known from 1,982 mature individuals. Does not meet criteria 	
E.	Quantitative analysis (statistical probability of extinction)	<ul style="list-style-type: none"> No information to assess. 	
Summary of assessment information			

EOO	69 km ² (MCP)	AOO	24 km ² (2 km x 2 km grid). Actual area subpopulations 0.0859 km ² .	Generation length	Unknown
No. locations	1	Severely fragmented	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>		
No. subpopulations	6	No. mature individuals	1,982		
Percentage global population within Australia			100		
Percentage population decline over 10 years or 3 generations			Unknown		
Threats (detail how the species is being impacted)					
Threat <i>(describe the threat and how it impacts on the species. Specify if the threat is past, current or potential)</i>		Extent <i>(give details of impact on whole species or specific subpopulations)</i>		Impact <i>(what is the level of threat to the conservation of the species)</i>	
Phytophthora dieback <ul style="list-style-type: none"> Phytophthora cinnamomi may kill plants and degrade associated habitat. The Montane Heath community is highly susceptible to dieback disease and all subpopulations are infested. Dead plants have tested positive for the disease but its level of susceptibility is not known. Past, current and future		Whole population		Catastrophic	
Grazing (rabbits, native fauna) <ul style="list-style-type: none"> Grazing of juvenile plants has killed tagged plants and reduced flowering and growth, thereby limiting natural recruitment. Past, current and future		Whole population		Severe	
Altered fire regimes <ul style="list-style-type: none"> Seeds germinate following fire. The species has a moderate primary juvenile period, with plants observed flowering four to five years after a fire. If fire frequency is increased the soil seed bank could be depleted before juvenile plants have reached maturity. However, it is likely that occasional fires are needed for recruitment. Past, current and future		Whole population		Severe	
Drought <ul style="list-style-type: none"> This is a threat to the species if it occurs over a number of years. Climate change modelling for the south west predicts a decline in rainfall, and some seasonal shift to summer rainfall events, which is likely to increase the potential impact of drought on the species. Future		Whole population		Severe	
Management and Recovery					

Is there a Recovery Plan (RP) or Conservation Management Plan operational for the species?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p><i>List all relevant recovery or management plans (including draft, in-preparation, out-of-date, national and State/Territory recovery plans, recovery plans for other species or ecological communities, or other management plans that may benefit or be relevant to the nominated species).</i></p> <ul style="list-style-type: none"> • Department of Environment and Conservation (2010) <i>Latrobea colophona</i> Interim Recovery Plan 2010–2015. Interim Recovery Plan No. 301. Department of Environment and Conservation, Western Australia. • Barrett, S. (2000) <i>Montane Heath and Thicket of the South West Botanical Province, above approximately 900 m above sea level</i> (Eastern Stirling Range Montane Heath and Thicket Community) <i>Interim Recovery Plan</i> No. 52, 1999-2002. Department of Conservation and Land Management, Western Australia. 		
<p><i>List current management or research actions, if any, that are being undertaken that benefit the conservation of the species.</i></p> <ul style="list-style-type: none"> • Monitoring and surveys have been carried out to determine plant numbers and impact of threats; • Fencing and caging has been installed around a number of subpopulations to reduce the impact of grazing; • Seed has been collected and stored at Parks and Wildlife Threatened Flora Seed Centre; • Scatter baiting with 1080 oats undertaken at subpopulations to reduce rabbit numbers; • Application of phosphite to subpopulations infested with dieback disease; • Establishing new populations through translocation into disease free area. 		
<p><i>List further recommended management or research actions, if any, that would benefit the conservation of the species. Please ensure that this section addresses all identified threats.</i></p> <p>Management</p> <ul style="list-style-type: none"> • Monitor subpopulations annually or near-annually for factors such as habitat degradation (including the impact of dieback), population stability (expansion or decline), grazing, pollinator activity, seed production, recruitment, longevity, predation and the impact of phosphite application on the species; • Continue to apply phosphite, via aerial spraying, to disease infested areas and monitor its effectiveness; • Develop and implement a fire management strategy, to determine fire control measures and fire frequency, and method of construction and maintenance of firebreaks; • Continue to install fencing/caging at subpopulations to reduce grazing by rabbits and native fauna and allow recruitment within a larger area of habitat; • When monitoring ascertains the threat of rabbits is high, scatter baiting of 1080 oats may be required; • Collect and store seeds to guard against the extinction of natural populations. Collections should aim to sample and preserve the maximum range of genetic diversity possible; • Undertake surveys during the species flowering period from November to January, in areas of potentially suitable habitat, such as heathland, or dense scrub on quartzite or sandstone shale in sandy clay; • Continue to follow dieback hygiene measures, particularly during installation and maintenance of firebreaks and when walking into populations in wet soil conditions; • Develop a translocation proposal and select a disease free translocation site. <p>Research</p> <p>Research biology and ecology of the species including:</p> <ul style="list-style-type: none"> • a study of the soil seed bank dynamics and the role of various factors including disturbance, competition, drought, inundation and grazing in recruitment and seedling survival; • determination of reproductive strategies, phenology and seasonal growth; 		

- investigation of the mating system and pollination biology;
- investigation of population genetic structure, levels of genetic diversity and minimum viable population size;
- impacts of dieback disease and phosphite application on the species and its habitat; and
- the impact of changes in hydrology in the habitat.

Nomination prepared by:

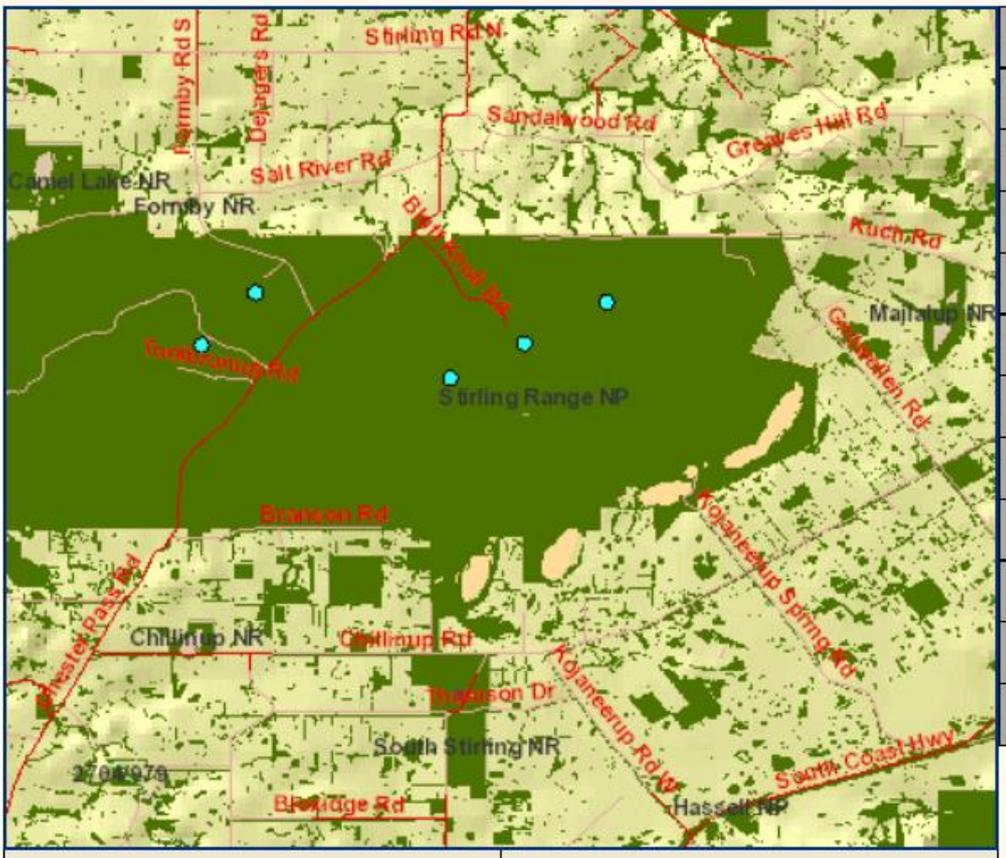
Contact details:

Date submitted:

14/9/2016

If the nomination has been refereed or reviewed by experts, please provide their names and contact details:

Occurrences of *Latrobea colophona* with remnant vegetation and conservation estate



Summary of subpopulation information (detailed information to be provided in the relevant sections of the form)						
Location (include coordinates)	Land tenure	Survey information: Date of survey and No. mature individuals	Area subpopulat ions	Site / habitat Condition	Threats (note if past, present or future)	Specific management actions
Bluff Knoll, Isongerup Peak, Mount Success, Mt Trio, Mt Hassell, Coyanarup Peak, Stirling Range National Park	National Park	2004/2005: 10 2007: 480 2008: 800 2009: 1,100 2011: *4,140 2013: 1,240 2015: **1,982 *includes 630 new plants found on Mt Trio and Mt Hassell in 2010 **includes 2 new plants found on Coyanarup Peak in 2015	8.59 ha	Plants/habitat highly threatened by dieback and grazing. Outside of fencing enclosure on Bluff Knoll, 30% mortality has occurred.	Phytophthora dieback (past, present, future) Grazing (rabbits, native fauna) (past, present, future) Fire (past, present, future) Drought (future)	Apply phosphite Develop a fire management plan Install fencing/caging Collect seed Implement disease hygiene measures Baiting program to be completed Continue to implement translocations



**FLORA NOMINATION FORM
TO BE CONSIDERED AT THE 2005 TSSC MEETING
(Updated 2016)**

Proposed addition, deletion or other change to the schedule of Declared Rare Flora pursuant to the *Wildlife Conservation Act 1950* and/or amendments to CALM's Priority Flora List.

See CALM Policy Statement No. 9 for criteria and definitions. Please complete all sections. Attach additional information, if space is insufficient.

1. TAXON: *Latrobea colophona* (previously *L. obovata* ms) **Author** Wilkins and Chappill (2007)

Description

Latrobea colophona is an erect shrub to 0.25 to 1 m high by 0.5 m wide. The stems are grey-green or red with green, flat spots or tubercules, present or absent. The flowers are red or yellow, one to three and axillary. The name colophona is derived from the Greek *kolophon* meaning peak, referring to the area in which this species occurs (Wilkins and Chappill 2007).

The species is similar to *L. recurva* but differs in its denser, straight leaves with a concave apex, and longer calyx lobes which are 4 to 4.8 mm long rather than 2.5 to 3.5 mm long (Wilkins and Chappill 2007).

Distribution

Latrobea colophona is endemic to Western Australia where it is confined to the Stirling Range National Park. The species grows in amongst dense scrub in sandy clay over quartzite or sandstone shale.

Biology and ecology

Latrobea colophona is an obligate re-seeder which is killed by fire and relies on soil-stored seed for regeneration. The species has a moderate primary juvenile period, with plants observed flowering four to five years after a fire on Mount Success. The persistence of the soil seed bank is unknown (Barrett et al. 2009).

The species flowers from November to January and produces fruits (pods) borne in late February. Pollinators have not been observed to date (Barrett et al. 2009).

Barrett, S., Dillon, R. and Monks, L. (2009 unpublished) Translocation Proposal *Latrobea colophona* (Papilionaceae). Department of Environment and Conservation, Western Australia.

Wilkins, C.F. and Chappill, J.A. (2007) Three new species of *Latrobea* (Leguminosae: Mirbelieae) from south-western Australia. *Nuytsia* 17(1): 483-492.

2. CURRENT LIST/SCHEDULE: Declared Rare: Threatened (extant) [WA: CR] or Presumed Extinct []
Priority [] None []

3. PROPOSED LIST/SCHEDULE: Threatened [EPBC Act as CR: B1ab(iii,v) Presumed Extinct []
Priority [] None []

4. PROPOSED IUCN THREAT CATEGORY (see page 4): Extinct (EX) [] Extinct in the Wild (EW) []
Critically Endangered (CR) [X] Endangered (EN) [] Vulnerable (VU) [] Lower Risk (LR) []

CR: B1ab(iii,v)

5. SUMMARY REASON FOR CHANGE:

Addition: Believed to be rare, but needs further survey [] Confirmed to be rare [**X**]
 Populations not adequately reserved [] Subject to threatening processes [**X**]
 Deletion: More common than previously thought [] Populations adequately reserved []
 Taxonomic uncertainty [] Does not comply with guidelines for hybrids []
 Change: Name Change [] Now presumed extinct [] Presumed extinct to extant []

Date found / /
 Other []

6. TAXONOMIC HISTORY/AFFINITY:

Vegetative specimens may be easily confused with *Muiriantha hassellii* and *Aotus genistoides* which both occur with *Latrobea colophona*, particularly in the case of juvenile vegetative individuals whose form, leaf size and shape are very similar. However, the leaves of *A. genistoides* are more revolute and those of *M. hassellii* more glabrous than those of *L. colophona*. No other *Latrobea* species has been observed with *L. colophona* although *L. elliptica* is similar in appearance and has been collected at lower altitudes in the Stirling Range, this differs in leaf shape.

Location and collection number of voucher specimen: Perth 06874150

Species named as *Latrobea colophona* and description published: Wilkins, C.F. and Chappill, J.A. (2007) Three new species of *Latrobea* (Leguminosae: Mirbelieae) from south-western Australia. *Nuytsia* 17(1): 483–492.

7. RECENT SURVEY EFFORT (refer to the CALM guidelines for survey requirements):

- The species' habitat is restricted to the mountain areas of the Stirling Range National Park;
- Not collected by G Keighery during flora survey of Stirling Range National Park in the 1980s;
- Not located or collected in a quadrat-based 'Biological Survey of Mountain in southern WA' 1994-1996 (5 10x10m quadrats located within potential habitat);
- Not located or collected during research into the fire ecology of the Montane thicket TEC (C. Yates & S. Barrett) 25 5x5m quadrats on Bluff Knoll plateau;
- Vegetative specimens collected by S Barrett from Isongerup (2003), Bluff Knoll (2005), and flowering specimen from Mt Success (Dec 2004), all from small subpopulations. The Isongerup subpopulation was surveyed October 2005;
- The species' habitat is traversed annually during monitoring of other threatened species (*Dryandra montana*, *Andersonia axilliflora*, *Persoonia micranthera*, *Dryandra anatona*, *Lambertia fairallii*, *Banksia brownii*);
- Two new subpopulations consisting of 630 mature individuals found on Mount Trio and Mount Hassel in 2010 by Parks and Wildlife staff;
- New subpopulation consisting of 2 mature individuals located on Coyanarup Peak in 2015 by Parks and Wildlife staff.

8. THREATS:

The main threats are associated with restricted area and susceptibility to fire, *Phytophthora*, drought:

- Susceptible to *Phytophthora* – all subpopulations are infested with dead plants testing positive for the disease;
- Killed outright by fire, regenerating from seed, also killed by drought;
- Grazing of juvenile plants reduced flowering and growth, thereby limiting natural recruitment;
- Drought a potential threat to the species.

9. RESEARCH KNOWLEDGE/NEEDS:

- Appears to be killed by fire, flowering observed on Mt Success at 3 years post-germination;
- Juveniles heavily grazed by rabbits (and ? quokka) on Isongerup and Bluff Knoll, no flowering seen;
- Susceptibility to *Phytophthora cinnamomi* unknown, presumed susceptible, has not been sampled or tested by B. Shearer.

10. MANAGEMENT NEEDS & IMPLICATIONS (including susceptibility to disease, and presence of other threats):

- Threatened by *Phytophthora cinnamomi* and grazing by rabbits and possibly quokka, all populations infested

by *P. cinnamomi*. Two subpopulations have been fenced to reduce the impact of mortality from grazing;

- Longevity of plants unknown but was not seen in vegetation burnt 14 years ago unlikely to be long-lived;
- Flowering observed 3 years post-germination on Mt Success (burnt 2000);
- Three known subpopulations occur within phosphite targets for other threatened species in the Montane thicket TEC (Bluff Knoll, Isongerup) and the Montane mallee thicket TEC (Success);
- No *ex-situ* material has been collected (seed or cuttings) (seed lodged with Threatened Flora Seed Centre).

11. DISTRIBUTION BY CALM REGION:

Kimberley [] Pilbara [] Midwest [] Goldfields [] Wheatbelt []
 Swan [] Central Forest [] Southern Forest [] South Coast [X]

12. KNOWN POPULATIONS AND RANGE (attach WAHERB and/or population database printout):

CALM Region	Location	Land Status	Population size/area	Date of most Recent Survey	Condition of Population
A. Conservation Reserves (National Parks, Nature Reserves, State Forests)					
1.	Bluff Knoll	SRNP	*200+(2ha)	2005	Grazed
			350 (1ha)	2014	Grazed
2.	Isongerup	SRNP	*100 (2ha)	2005	Grazed
			400 (0.5ha)	2015	Grazed
3.	Mt Success	SRNP	10+ (100m ²)	2004	Moderate
			600 (6.05ha)	2015	Grazed
4.	Mt Trio	SRNP	130 (0.37ha)	2010	Healthy
5.	Mt Hassel	SRNP	500 (0.37)	2010	Healthy
6.	Coyanarup Peak	SRNP	2 (*50)	2015	Moderate
			* = juveniles		
B. Other Crown Lands					
C. Private/Leasehold Lands					
D. Unconfirmed Locations					

13. TRENDS IN POPULATION SIZE & RANGE:

A. Previous: unknown, 2 other collections on Florabase

1. E & S Pignatti on Bluff Knoll 25/10/85
2. A Strid Bluff Knoll 25/11/82 – “on rocky slopes and plateau” – therefore it would appear to have been more abundant then

B. Current

Known from one location within Stirling Range National Park. Although additional surveys located three new subpopulations increasing plant numbers to 1,982, habitat is highly threatened from *Phytophthora cinnamomi*, fire, grazing and a drying climate. Outside of a fenced enclosure on Bluff Knoll, there has been 31% mortality of tagged plants from 2014 to 2015 with minimal reproduction and seed set due to grazing.

14. SUMMARY STATUS ASSESSMENT:

Latrobea colophona appears to be naturally rare and restricted to the mountains of the eastern Stirling Range.

Further surveys in 2010 and 2015 located three small new subpopulations. 1,982 mature individuals recorded in 2015. Threats include *Phytophthora*, grazing and fire.

Collection of *ex-situ* material is a high priority as well as determining its susceptibility to *P. cinnamomi*.

15. PROPOSED BY:

DATE: 2/12/2005

PLEASE FORWARD COMPLETED FORM TO:

**DEPARTMENT OF CONSERVATION AND LAND
MANAGEMENT
ADMINISTRATIVE OFFICER (FLORA)
CALM WILDLIFE BRANCH
LOCKED BAG 104
BENTLEY DELIVERY CENTRE WA 6983**

or Email address:

johnri@calm.wa.gov.au

or Fax Address:

(08) 9334 0278 (Phone enquiries: 9334 0422)

****PLEASE ENSURE THAT YOU COMPLETE THE ATTACHED RANKING FORM (Nomination may not be accepted unless this is completed and returned)****